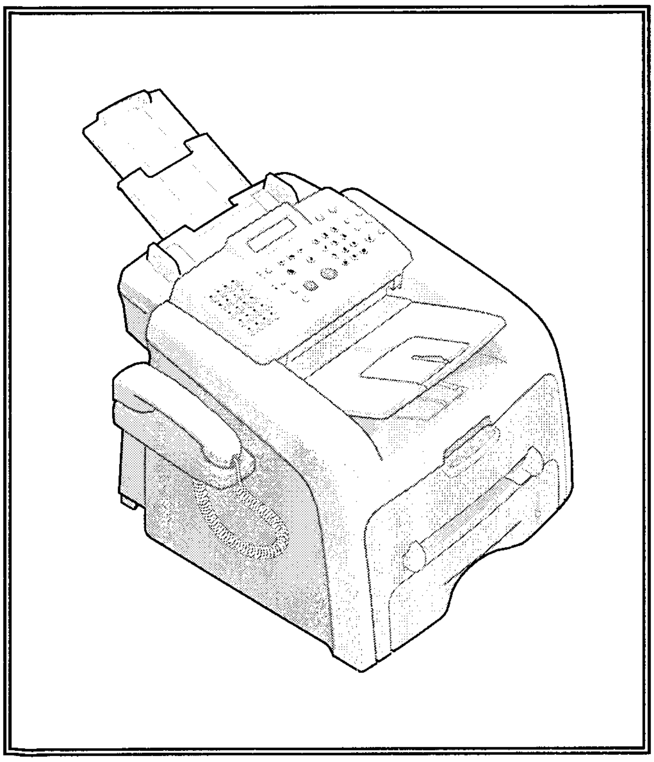
SAMSUNG

DIGITAL LASER MFP
SF-560
SF-565P

SERVICE Manual

DIGITAL LASER MFP



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1. Precautions

In order to prevent accidents and to prevent damage to the equipment please read the precautions listed below carefully before servicing the printer and follow them closely.

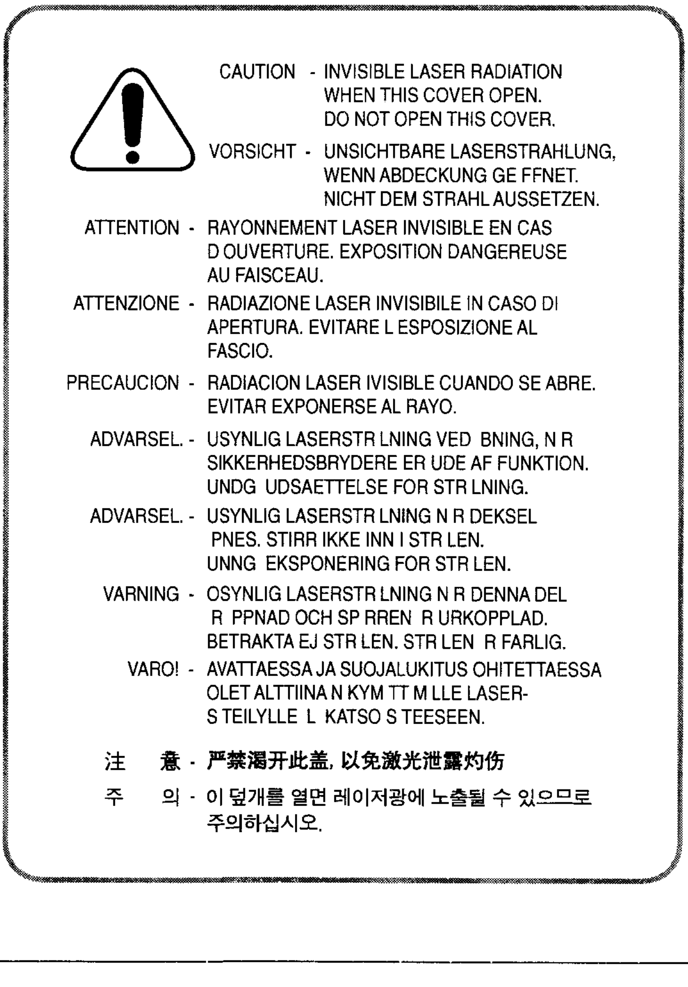
1.1 Safety Warning

(1) Only to be serviced by appropriately qualified service engineers.
High voltages and lasers inside this product are dangerous. This printer should only be serviced by a suitably trained and qualified service engineer.

(2) Use only Samsung replacement parts
There are no user serviceable parts inside the printer. Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire haz-ards.

(3) Laser Safety Statement
The Printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1(1) laser products, and elsewhere, it is certified as a Class I laser product
con-forming to the requirements of IEC 825. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

Warning >> Never operate or service the printer with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety pre-cautions should always be followed to reduce risk of fire, electric shock, and injury to persons.



CAUTION - INVISIBLE LASER RADIATION
WHEN THIS COVER OPEN.
DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GE FFNET.
NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS
D OUVERTURE. EXPOSITION DANGEREUSE
AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI
APERTURA. EVITARE L ESPOSIZIONE AL
FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE.
EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTR LNING VED BNING, N R
SIKKERHEDSBRYDERE ER UDE AF FUNKTION.
UNDG UDSAETTELSE FOR STR LNING.

ADVARSEL. - USYNLIG LASERSTR LNING N R DEKSEL
PNES. STIRR IKKE INN I STR LEN.
UNNG EKSPONERING FOR STR LEN.

VARNING - OSYNLIG LASERSTR LNING N R DENNA DEL
R PPNAD OCH SP RREN R URKOPPLAD.
BETRAKTA EJ STR LEN. STR LEN R FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA
OLET ALTTIINA N KYM TT M LLE LASER-
S TEILYLLE L KATSO S TEESEEN.

注 意 - 严禁揭开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로
주의하십시오.

1.2 Caution for safety

1.2.1 Toxic material

This product contains toxic materials that could cause illness if ingested.

(1) If the LCD control panel is damaged it is possible for the liquid inside to leak. This liquid is toxic. Contact with the skin should be avoided, wash any splashes from eyes or skin immediately and contact your doctor. If the liquid gets into the mouth or is swallowed see a doctor immediately.

(2) Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

(1) Use only the correct voltage, failure to do so could damage the printer and potentially cause a fire cause an electric shock.

(2) Use only the power cable supplied with the printer. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.

(3) Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.

(4) Do not allow water or other liquids to spill into the printer, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the printer these could cause a short circuit leading to an electric shock or fire hazard..

(5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the printer remove the power plug from the wall socket.

(6) Use caution when inserting or taking off the power plug. The power plug has to be inserted completely. If not, a fire will be caused due to poor contact. When taking off the power plug, grip the plug and remove it.

(7) Take care of the power cable. Do not allow it to become twisted, bent sharply round corners or other wise damaged. Do not place objects on top of the power cable. If the power cable is damaged it could overheat and cause a fire or exposed cables could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can attack the coating on the power cable, weakening the cover or exposing cables causing fire and shock risks.

(8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.

(9) Use caution during thunder or lightening storms. Samsung recommend that this machine be disconnected from the power source when such weather conditions are expected. Do not touch the machine or the power cord if it is still connected to the wall socket in these weather conditions.

(10) Avoid damp or dusty areas, install the printer in a clean well ventilated location. Do not position the machine near a humidifier. Damp and dust build up inside the machine can lead to overheating and cause a fire.

(11) Do not position the printer in direct sunlight. This will cause the temperature inside the printer to rise possibly leading to the printer failing to work properly and in extreme conditions could lead to a fire.

(12) Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for your own personal safety, to avoid injury and so as not to damage the printer

(1) Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall.
(2) printer contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.
(3) Do not place any small metal objects, containers of water, chemicals or other liquids close to the printer which if spilled could get into the machine and cause damage or a shock or fire hazard.
(4) Do not install the machine in areas with high dust or moisture levels, beside on open window or close to a humidifier or heater. Damage could be cause to the printer in such areas.
(5) Do not place candles, burning cigarettes, etc on the printer, These could cause a fire.

1.2.4 Assembly / Disassembly Precautions

Replace parts carefully, always use Samsung parts. Take care to note the exact location of parts and also cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly. Please carry out the following procedures before dismantling the printer or replacing any parts.

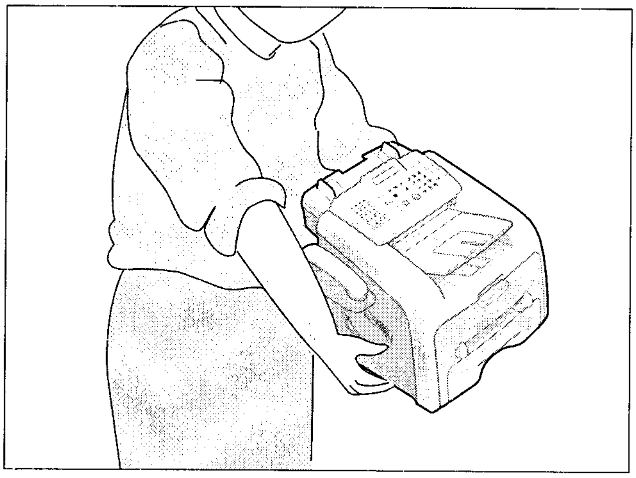
(1) Check the contents of the machine memory and make a note of any user settings. These will be erased if the mainboard or network card is replaced.
(2) Ensure that power is disconnected before servicing or replacing any electrical parts.
(3) Disconnect printer interface cables and power cables.
(4) Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.
(5) When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
(6) Take care not to drop any small parts into the machine.
(7) Handling of the Toner Cartridge
    - The OPC Drum can be irreparably damaged if it exposed to light.
      Take care not to expose the OPC Drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 mins can damage the surface's photoconductive properties and will result in print quality degradation. Take extra care when servicing the printer. Remove the OPC Drum and store it in a black bag or other lightproof container. Take care when working with the covers(especially the top cover) open as light is admitted to the OPC area and can damage the OPC Drum.
    - Take care not to scratch the green surface of OPC Drum Unit.
      If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

1.2.5 Disregarding this warning may cause bodily injury

(1) **Be careful with the high temperature part.**
The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool down before disassembly.

(2) **Do not put finger or hair into the rotating parts.**
Take care when using a printer. It contains many rotating parts. Ensure that fingers, hair, clothing etc. do not become caught in the mechanism as this could cause injury.

(3) **When you move the printer.**
This printer weighs 10kg including toner cartridge and cassette. Use safe lifting and handling techniques. Use the lifting handles located on each side of the machine. Back injury could be caused if you do not lift carefully.



(4) **Ensure the printer is installed safely.**
The printer weighs 10Kg, ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall possibly causing personal injury or damaging the printer.

(5) Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called "Electrostatically Sensitive (ES) Devices", or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor "chip" components.

The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

Caution >>Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
3. Use only a grounded tip soldering iron to solder or desolder ESDs.
4. Use only an "anti-static" solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one's foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

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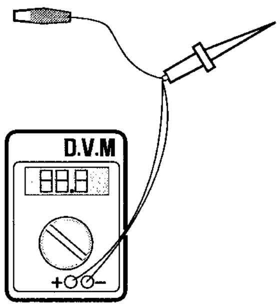
2. Reference Information

This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of tests pages is also included.

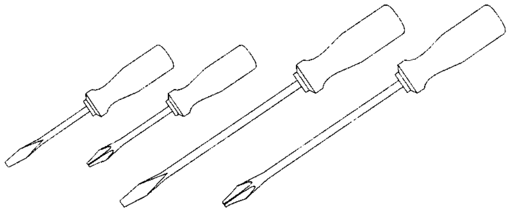
2.1 Tool for Troubleshooting

The following tools are recommended safe and easy troubleshooting as described in this service manual.

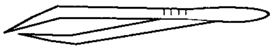
- **DVM(Digital Volt Meter)**
  Standard : Indicates more than 3 digits.



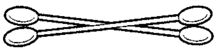
- **Driver**
  Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short).



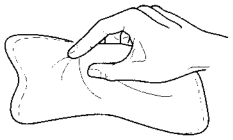
- **Tweezers**
  Standard : For general home use, small type.



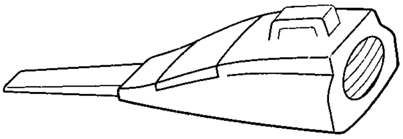
- **Cotton Swab**
  Standard : For general home use, for medical service.



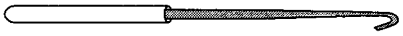
- **Cleaning Equipments**
  Standard : An IPA(Isopropyl Alcohol)dry wipe tissue or a gentle neutral detergent and lint-free cloth.



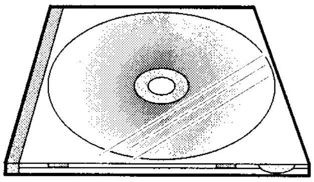
- **Vacuum Cleaner**



- **Spring Hook**
  Standard : For general use



- **Software (Driver) installation CD ROM**



2.2 Acronyms and Abbreviations

The table in the below explains abbreviations used in this service manual.
The contents of this service manual are declared with abbreviations in many parts. Please refer to the table.

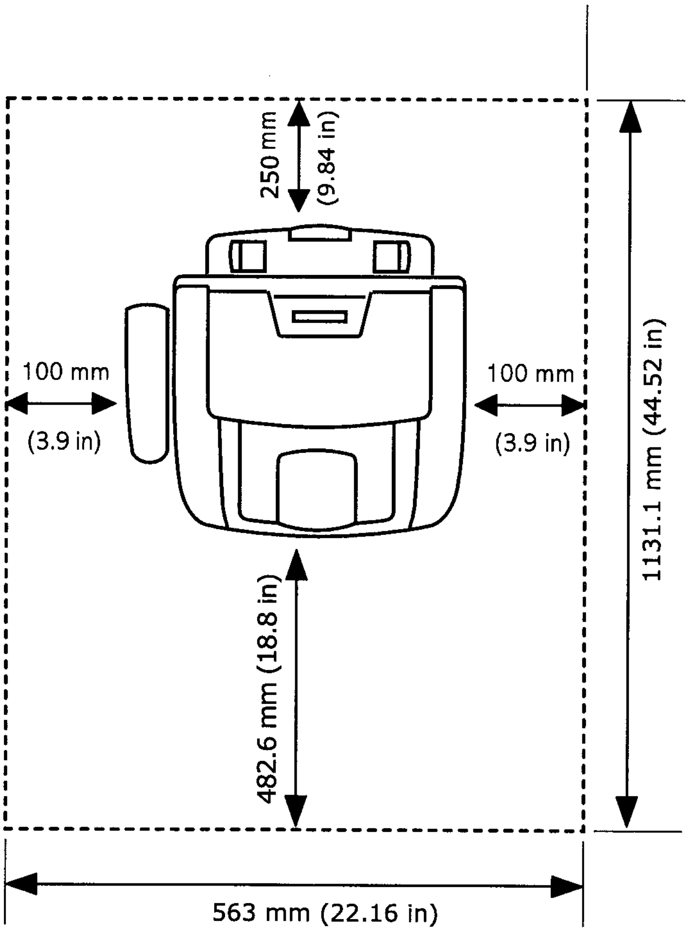
ADC	Analog-to-Digital-Conversion	EPP	Enhanced Parallel Port
AP	Access Point	F/W	Firmware
AC	Alternating Current	FCF/FCT	First Cassette Feeder/First Cassette Tray
ASIC Circuit	Application Specific Integrated	FISO	Front-In, Side-Out
ASSY	Assembly	FPOT	First Print out Time
BIOS	Basic Input Output System	GDI	Windows Graphic Device Interface
BLDC Motor	Brushless DC Motor	GIF	Graphic Interchange Format
CMOS	Complementary Metal Oxide Semiconductor	HBP	Host Based Printing
CMYK	Cyan, Magenta, Yellow, Black	GND	Ground
CN	Connector	HDD	Hard Disk Drive
CON	Connector	HTML	Hyper Text Transfer Protocol
CPU	Central Processing Unit	HV	High Voltage
CTD Sensor	Color Toner Density Sensor	HVPS	High Voltage Power Supply
dB	Decibel	I/F	Interface
dBA	A-Weighted decibel	I/O	Input and Output
dBm	Decibel milliwatt	lb	Pound(s)
DC	Direct Current	IC	Integrated Circuit
DCU	Diagnostic Control Unit	ICC	International Color Consortium
DIMM	Dual In-line Memory Module	IDE	Intelligent Drive Electronics or Integrated Drive Electronics
DPI	Dot Per Inch	IEEE	Institute of Electrical and
DRAM	Dynamic Random Access Memory	Electronics	Engineers. Inc
DVM	Digital Voltmeter	IOT	Image Output Terminal (Color printer, Copier)
ECP	Enhanced Capability Port	IPA	Isopropy Alcohol
ECU	Engine Control Unit	IPC	Inter Process CommunicationEPP Enhanced parallel Port
EEPROM	Electronically Erasable Programmable Read Only Memory	IPM	Images Per Minute
EMI	Electro Magnetic Interference	ITB	Image Transfer Belt
EP	Electro photographic	RAM	Random Access Memory
LAN	local area network	ROM	Read Only Memory
LBP	Laser Beam Printer	SCF/SCT	Second Cassette Feeder/Second Cassette Tray

LCD	Liquid Crystal Display	SMPS	Switching Mode Power Supply
LED	Light Emitting Diode	SPGP	Samsung Printer Graphic Processor
LSU	Laser Scanning Unit	SPL	Samsung Printer Language
MB	Megabyte	Spool	Simultaneous Peripheral Operation Online
MHz	Megahertz	SURF	Surface Rapid Fusing
MPBF	Mean Prints Between Failure	SW	Switch
MPF/MPT	Multi Purpose Feeder/Multi Purpose Tray	sync	Synchronous or Synchronization
NIC	Network Interface Card	T1	ITB
NPC	Network Printer Card	T2	Transfer Roller
NVRAM	Nonvolatile Random Access Memory	TRC	Toner Reproduction Curve
OPC	Organic Photo Conductor	PnP	Universal Plug and Play
PBA	Printed Board Assembly	URL	Uniform Resource Locator
TRC	Toner Reproduction Curve	USB	Universal Serial Bus
PCL	Printer Command Language , Printer Control Language	VCCI	Voluntary Control Council for Interference Information Technology Equipment
PCI	Peripheral Component Interconnect by Intel 1992/6/22, is a local bus standard developed by Intel and introduced in April, 1993 : A60, B60 Pins	WECA Alliance	Wireless Ethernet Compatibility
PDF	Portable Document Format	Wi-Fi	Wireless Fidelity
PDL	Page Description Language		
Ping	Packet internet or Inter-Network Groper		
PPD	Postscript Printer Discription		
PPM	Page Per Minute		
PS	Post Script		
PTL	Pre-Transfer Lamp		
PWM	Pulse Width Moduration		
Q'ty	Quantity		

2.3 Select a location for the printer

- Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

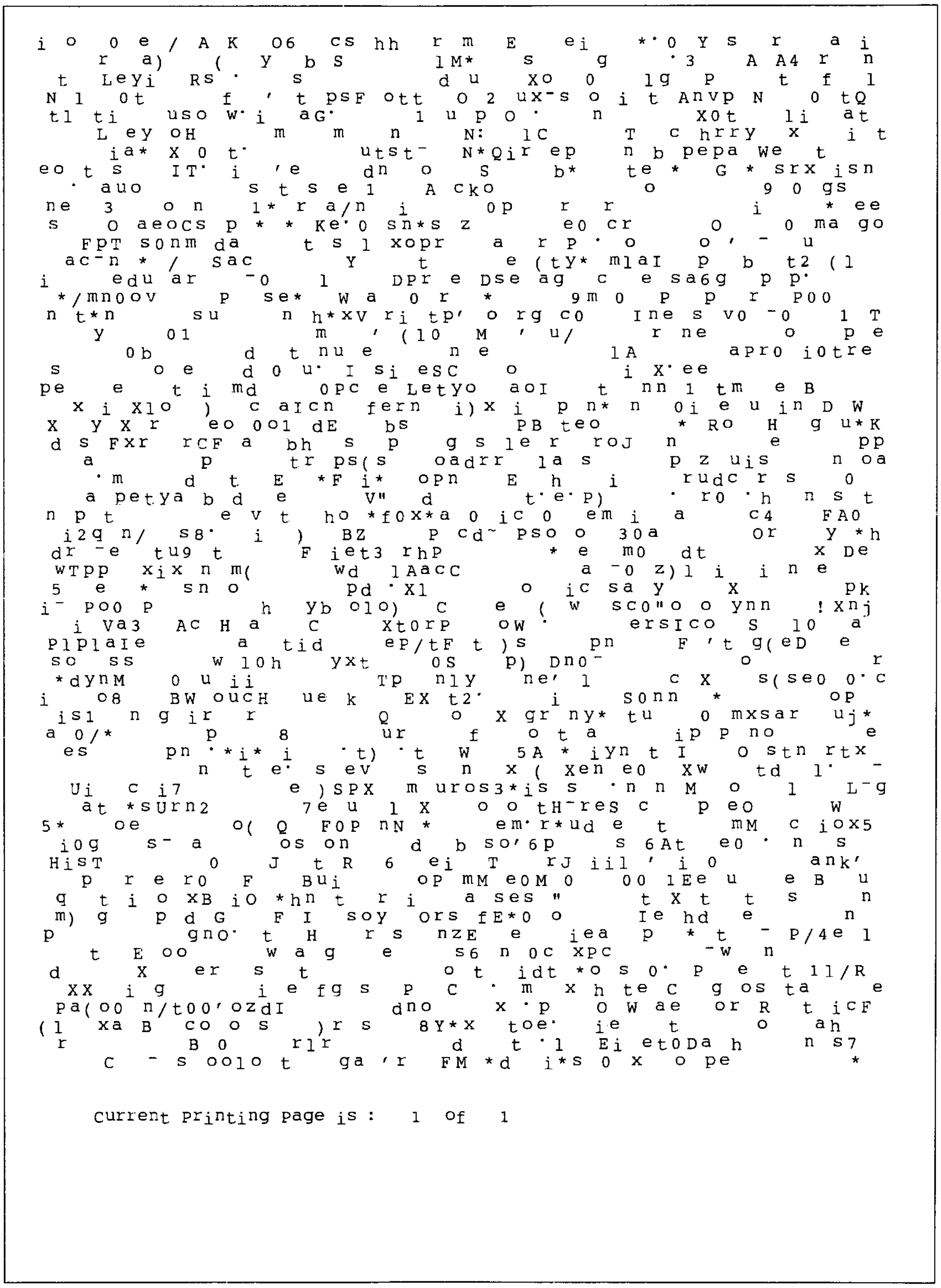
- Provide the proper environment :
  - A firm, level surface
  - Away from the direct airflow of air conditioners, heaters, or ventilators
  - Free of extreme fluctuations of temperature, sunlight, or humidity
  - Clean, dry, and free of dust


250 mm
(9.84 in)
100 mm
(3.9 in)
100 mm
(3.9 in)
1131.1 mm (44.52 in)
482.6 mm (18.8 in)
563 mm (22.16 in)

2.4 The Sample Pattern for the Test

The sample pattern shown in below is the standard pattern used in a factory.
The contents of the life span and the printing speed are measured with the pattern shown in below.
(The picture in the manual is 70% size of the actual A4 size.)

2.4.1 A4 5% Pattern



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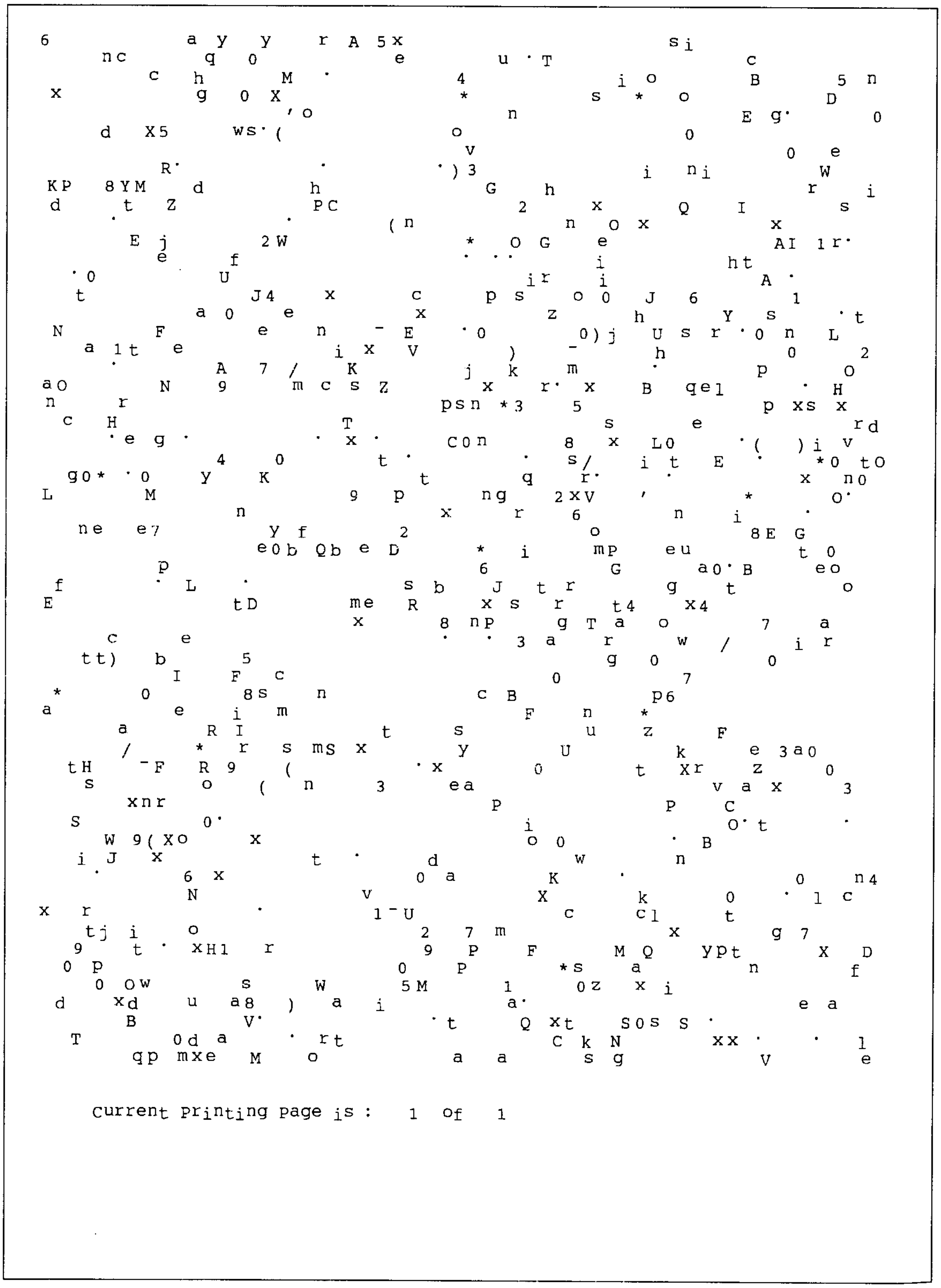
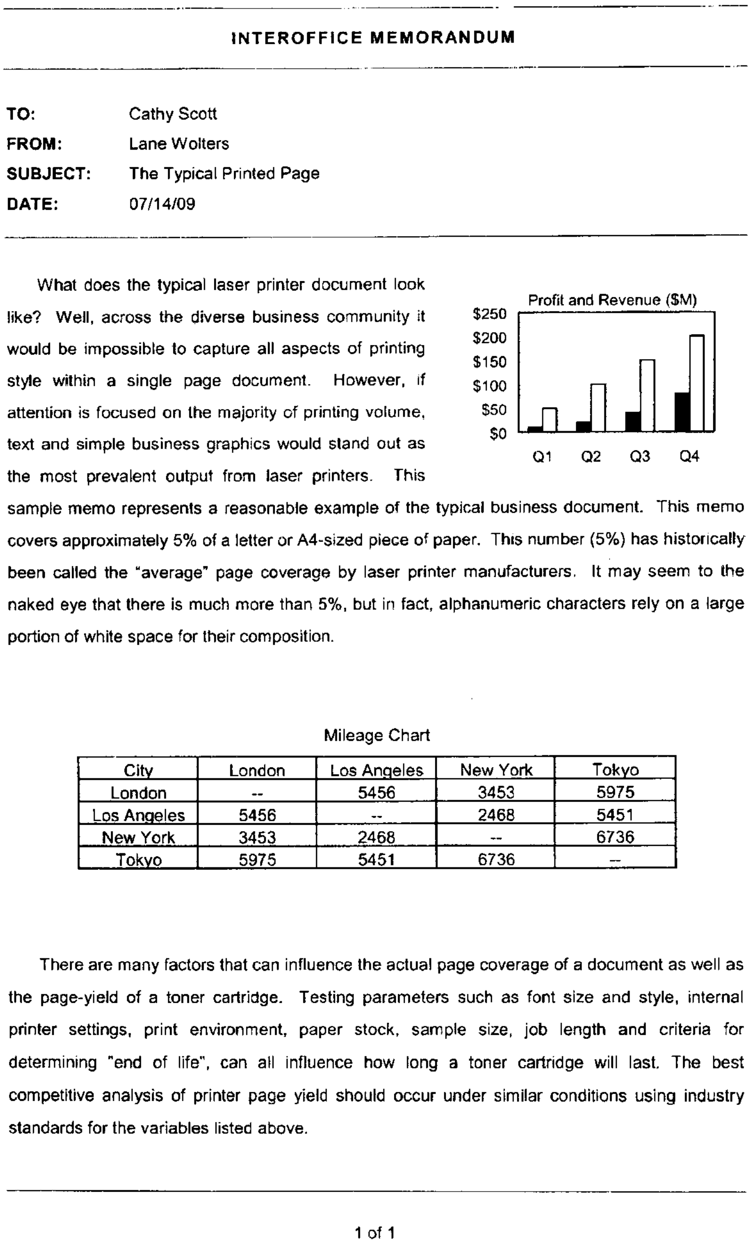
current Printing page is : 1 of 1

2.4.2 A4 2% Pattern



current printing page is : 1 of 1

2.4.3 A4 IDC 5% Patten



INTEROFFICE MEMORANDUM

TO: Cathy Scott
FROM: Lane Wolters
SUBJECT: The Typical Printed Page
DATE: 07/14/09

What does the typical laser printer document look like? Well, across the diverse business community it would be impossible to capture all aspects of printing style within a single page document. However, if attention is focused on the majority of printing volume, text and simple business graphics would stand out as the most prevalent output from laser printers. This sample memo represents a reasonable example of the typical business document. This memo covers approximately 5% of a letter or A4-sized piece of paper. This number (5%) has historically been called the "average" page coverage by laser printer manufacturers. It may seem to the naked eye that there is much more than 5%, but in fact, alphanumeric characters rely on a large portion of white space for their composition.

Mileage Chart

City	London	Los Angeles	New York	Tokyo
London	--	5456	3453	5975
Los Angeles	5456	--	2468	5451
New York	3453	2468	--	6736
Tokyo	5975	5451	6736	--

There are many factors that can influence the actual page coverage of a document as well as the page-yield of a toner cartridge. Testing parameters such as font size and style, internal printer settings, print environment, paper stock, sample size, job length and criteria for determining "end of life", can all influence how long a toner cartridge will last. The best competitive analysis of printer page yield should occur under similar conditions using industry standards for the variables listed above.

1 of 1

MEMO

3. Specifications

Specfications are correct at the time of printing. Product specifications are subject to change without notice. See below for product specifications.

Items			SF-565P Series	
Model Name			SF-565P	SF-560
Functions			Fax,Copier,Printer,Scanner	Fax,Copier
General	Size (W*D*H) w/o Hand Set		363.0 * 398.0 * 308.3(mm)	363.0 * 398.0 * 308.3(mm)
	Weight Without Toner Cartridge With Toner Cartridge		10kg 11.5kg	10kg 11.5kg
	LCD		16*2	16*2
	Interface		IEEE1284, USB 1.1	USB 1.1 : f/w Down Load
	AMV(Average Month Volume)	Printing	500	-
		Scan to Copy or Scan to Fax	500	500
	Duty cycle, Monthly	Printing	Up to 10,000 pages	Up to 10,000 pages
		ADF SCAN	Up to 2,000 pages	Up to 2,000 pages
	Engine Life		Up to 120,000 Pages	Up to 120,000 Pages
Power Consumption	Power Switch		Yes	Yes
	Input Voltage		AC110V~127V, 220V ~ 240V	AC110V~127V, 220V ~ 240V
	Power Sleep Mode		Energy Star Compliant	Energy Star Compliant
**Noise	Operating(ADF)		Less than 52 dBA	Less than 52 dBA
	Standby		Less than 39 dBA	Less than 39 dBA
	Printing		Less than 509 dBA	Less than 50 dBA (Fax Rec., Memoty Copy)
EMI Approval	EMI Approval		Class B	Class B
PC Print	Power Save Mode		Yes (5/10/15/30/45min.off)	Yes (5/10/15/30/45min.off)
	Print Method		Laser	Laser
	N/W I/f		No	No
	* Speed (Engine)		Up to 16 PPM in A4 size, Up to 17 PPM in Letter size	-
	Resolution	Normal	Up to 600 x 600 DPI effective output	-
		RET	No	-
	Print Language		GDI	-
	Toner Save		Yes	Yes(Text Mode)
	Fpot	Stand by	Approx. 12 seconds	-
		Power Save	Less than 42 seconds	-
	Printable Area		208 x 273 mm (Letter)	-
	Duplex Print		Manual (driver support provided)	-

* Speed will be affected by Operating System used, computing performance, application software, connecting method, media type, media size and job complexity.

** Sound Pressure Level, ISO 7779

Items			SF-565P Series	
Model Name			SF-565P	SF-560
Scan	Halftone		256level	256level
	Scan Method		"CIS, Mono"	"CIS, Mono"
	*Scan Speed (Second /scan)	Gray	Up to 72 sec	-
		Color	-	-
		Black&White	Up to 25 sec	-
	Resolution(Optical)		Up to 200 x 200 DPI effective output	Up to 200 x 200 DPI effective output
	Halftone		256level	-
	Scan Width	Max	216mm	-
		Effective	208mm	-
	Scan Length	Max	400mm	-
Copy	Speed		Up to 16 PPM in A4 size, Up to 17 PPM in Letter size	Up to 16 PPM in A4 size, Up to 17 PPM in Letter size
	Resolution		Up to 300 x 300 DPI effective output	Up to 300 x 300 DPI effective output
	Halftone		256level	256level
	Copy Quality Selection or Original Image type selection Mode	Text Photo	16sec/Letter 16sec/letter	16sec/Letter 16sec/letter
	FCOT	Power Save	Yes	Yes
		Stand by	approx : 30sec	approx : 30sec
	*Copy Speed	SDMC	Up to 16 PPM in A4 size, Up to 17 PPM in Letter size	Up to 16 PPM in A4 size, Up to 17 PPM in Letter size
		MDMC	3cpm	3cpm
	Zoom Range		50-150%	50-150%
	Multi Copy		1~99	1~99
Telephone	Handset		Yes (Germany: No)	Yes (Germany: No)
	1-Touch Dial		20	20
	Speed Dial		80	80
	TAD		No	No
	TAD I/F		Yes	Yes
	Tone/Pulse		Tone (DTMF)	Tone (DTMF)
			Pulse : setting in tech mode	Pulse : setting in tech mode
	Earth/Recall		No	No
	SMS		No	No
	External Phone Interface		Yes	Yes
Fax	Compatibility		ITU-T G3	ITU-T G3
	Communication System		PSTN/PABX	PSTN/PABX
	Modem Speed		33.6Kbps	33.6Kbps
	TX Speed		approx. 3 sec	approx. 3 sec
	Compression		MH/MR/MMR	MH/MR/MMR
	ECM		Yes	Yes
	Resolution	Std	Up to 203 x 98 DPI effective output	Up to 203 x 98 DPI effective output
		Fine	Up to 203 x 196 DPI effective output	Up to 203 x 196 DPI effective output
		S.Fine	Up to 203 x 392 DPI effective output	Up to 203 x 392 DPI effective output
		Std	Up to 6 sec	Up to 6 sec
		Fine	Up to 12 sec	Up to 12 sec
		S.Fine	Up to 24 sec	Up to 24 sec

Items			SF-565P Series	
Model Name			SF-565P	SF-560
Fax (Continued)	Halftone		256level	256level
	Memory	Capacity	Total memory: 8MB(Fax: 2MB)	Total memory: 8MB(Fax: 2MB)
		Optional Memory	No	No
		Broadcasting	Yes	Yes
		Delay TX	Yes	Yes
		Memory RX	Yes	Yes
	Functions	Voice Request	No	No
		TTI	Yes	Yes
		RTI	Yes	Yes
		Polling	Rx Polling	Rx Polling
		Security Receiv	Yes	Yes
		Flash	No	No
		Auto Reduction	Yes	Yes
		"F/W Upgrade from Remote"	Yes	Yes
	Memory B/U		Yes(96 Hour)	Yes(96 Hour)
Paper Handling	Casstte	Type	Cassette	Cassette
		Input Capacity	250Sheets/20lb	250Sheets/20lb
		Optional Cassette	No	No
		Output Capacity	Max. 150 sheets/20lb	Max 150 sheets/20lb
		Output Control	Face down	Face down
		Bypass	1sh	1sh
		Media Size for Main Tray	For Fax and Copy: A4,Letter, Legal For PC Print : A4,Letter Legal. Folio, Executive, B5	For Fax and Copy: A4,Letter, Legal For PC Print : A4,Letter, Legal. Folio, Executive, B5"
		Media Size for Bypass	Envelope6 3/4, 7 3/4,#9, #10,DL,C5,B5	Envelope6 3/4, 7 3/4,#9, #10,DL,C5,B5
		Media Weight	Auto : 16 ~ 28 lb Bypass: 16 ~ 43 lb	Auto : 16 ~ 28 lb Bypass: 16 ~ 43 lb
	ADF	Input Capacity	Min. 20 Sheets	Min. 20 Sheets
		Media Weight	12.5lb ~ 28lb, 32lb(1 sheet)	12.5lb ~ 28lb, 32lb(1 sheet)

* Copy or Scan speed will be affected by Operating System used, computing performance, application software, connecting method, media type, media size and job complexity.

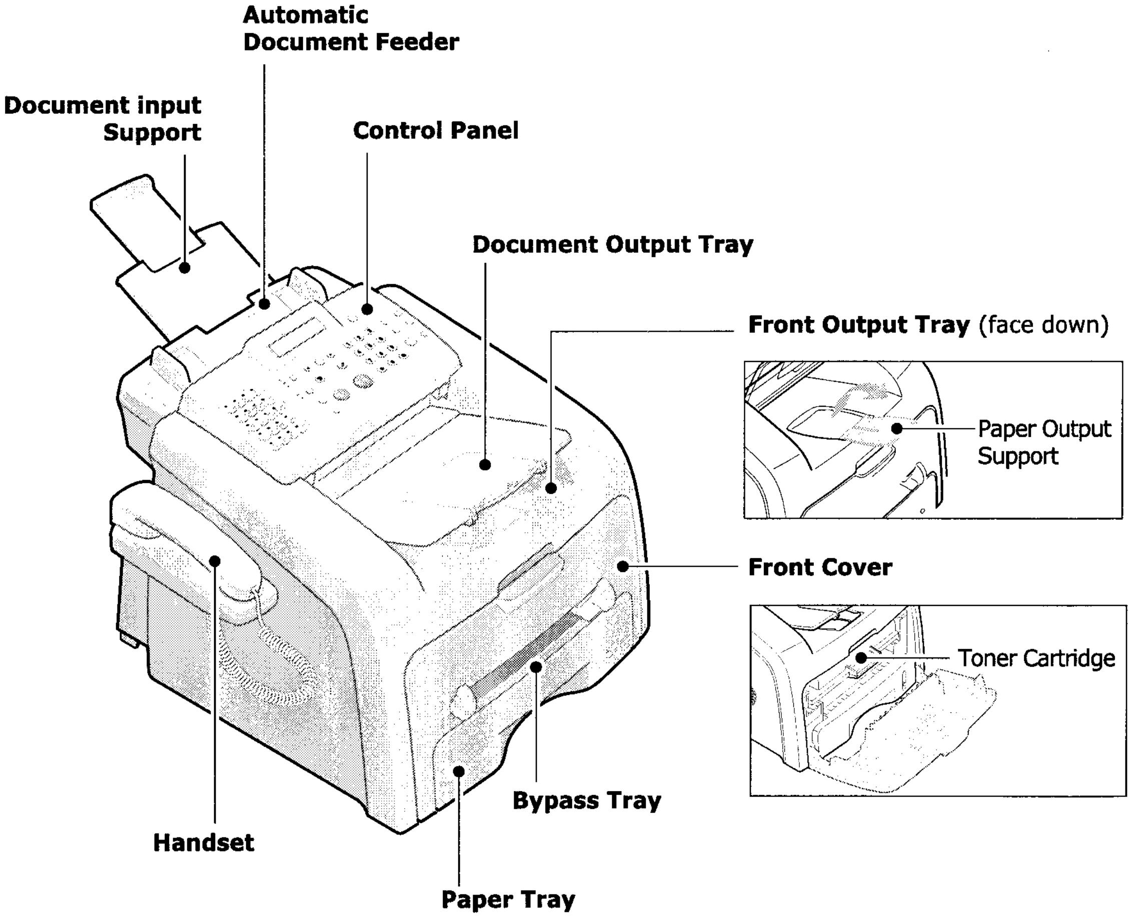
Items			SF-565P Series	
Model Name			SF-565P	SF-560
Software	Windows Compatiblity (Scan/Print)	DOS	No	No
		Win 3.x	No	No
		Win 95	Yes	No
		Win 98&WinME	Yes	No
		Win NT 4.0	Yes	No
		Win 2000	Yes	No
		Win XP	Yes	No
	Driver	GDI Printer	SPL	No
		TWAIN	Yes	No
		FaxRCP (Windows ONLY)	Yes	No
		Mac Printer	Yes	No
		Mac Scanner	No	No
		Linux Printer	Yes	No
		Linux Scanner	Yes	No
		PC-FAX	No	No
	M/S Certification	WHQL	Yes (WinXP Printer driver only)	-
		WIA	No	No
	Bundle S/W		SmarThru 3	-
	Media	CD-ROM	Yes	-
		Manual	Standalone Fax: Book MFP: CD	Standalone Fax: Book
		Diskette	No	No
Consumables	Life	Initial	1,000 Pages	1,000 Pages
		Running	3,000 Pages	3,000 Pages
	Toner Sensor (Software)		Yes(Dot Counter)	Yes(Dot Counter)
Periodic Replacing Parts			Pick Up Roller : Up to 60,000 sheets Transfer Roller : Up to 60,000 sheets Fuser Assembly : Up to 60,000 sheets ADF Roller : Up to 60,000 sheets ADF Rubber : Up to 10,000 sheets	

4. Summary of Product

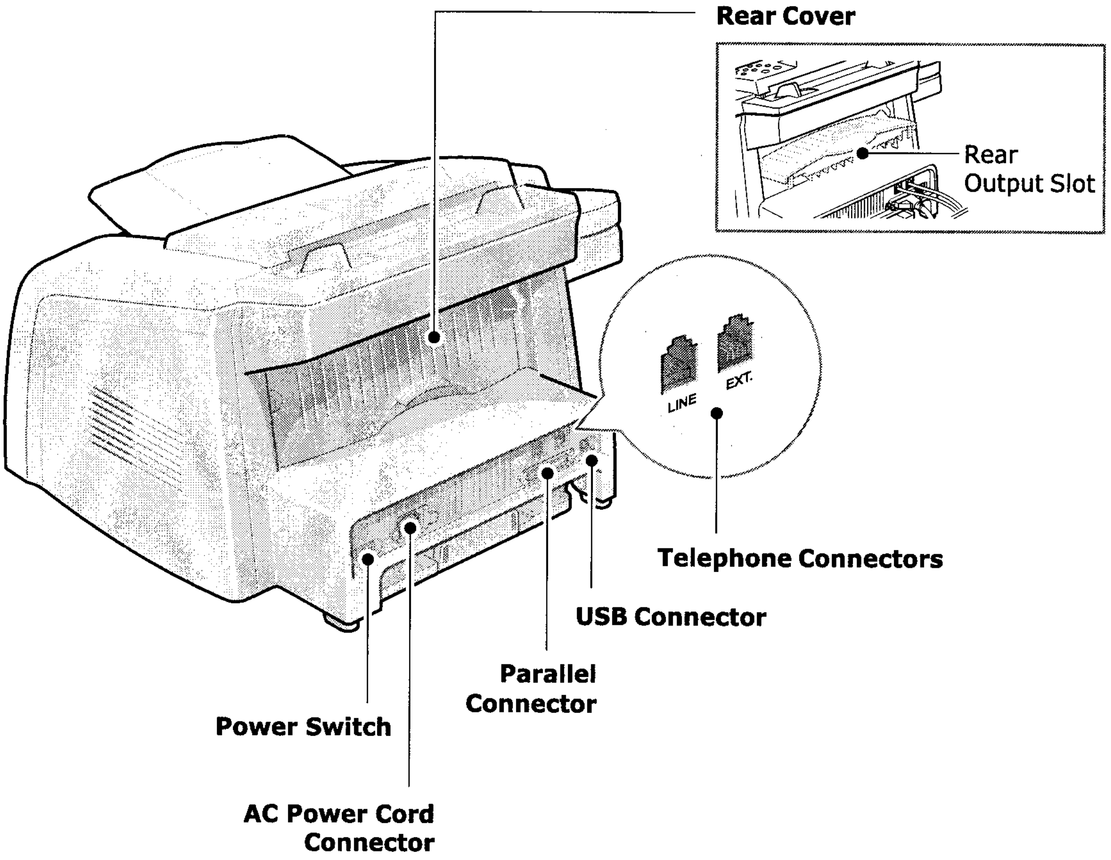
This chapter describes the functions and operating principals of the main components.

4.1 Printer Components

4.1.1 Front View

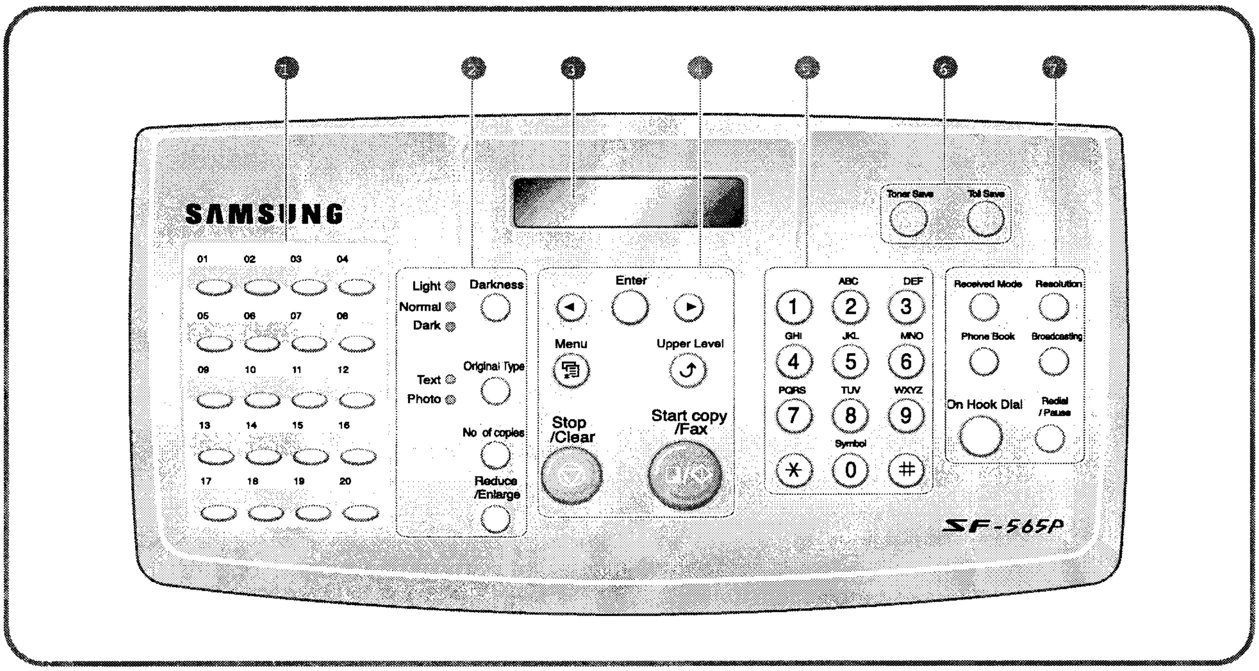

Automatic Document Feeder
Document input Support
Control Panel
Document Output Tray
Front Output Tray (face down)
Paper Output Support
Front Cover
Toner Cartridge
Handset
Bypass Tray
Paper Tray

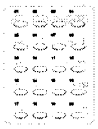
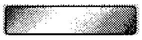
4.1.2 Rear View


Rear Cover
Rear
Output Slot
LINE
EXT.
Telephone Connectors
USB Connector
Parallel
Connector
Power Switch
AC Power Cord
Connector

4.1.3 Control Panel

< SF-560/565P >


1
2
3
4
5
6
7
SAMSUNG
01 02 03 04
05 06 07 08
09 10 11 12
13 14 15 16
17 18 19 20
Light
Normal
Dark
Darkness
Text
Photo
Original Type
No. of copies
Reduce /Enlarge
Enter
Menu
Upper Level
Stop /Clear
Start copy /Fax
ABC DEF GHI JKL MNO PQRS TUV WXYZ
1 2 3 4 5 6 7 8 9 * 0 #
Symbol
Toner Save
Toll Save
Received Mode
Resolution
Phone Book
Broadcasting
On Hook Dial
Redial /Pause
SF-565P

1		Use to store frequently-dialed fax number and dial them with a single button touch.
2 COPY	Darkness ○	Adjusts the brightness of the documents for the current copy job.
	Original Type ○	Selects the document type for the current copy job.
	Reduce /Enlarge ○	Makes a copy smaller or larger than the original document.
	No. of copies ○	Selects the number of copies.
3		Displays the current status and prompts during an operation.
4	◄ ►	Scrolls through the options available for the selected menu item.
	Enter ○	Confirms the selection on the display.
	Menu ○	Enters Menu mode and scrolls through the menus available.

4	Upper Level	Sends you back to the upper menu level.
	Stop /Clear	Stops an operation at any time. In Standby mode clears/cancels the copy options such as the darkness, the document type setting, the copy size and the number of copies.
	Start copy /Fax	Starts a job.
5	1 2 3 4 5 6 7 8 9 * 0 #	Dials a number or enters alphanumeric characters.
6 SAVE	Toner Save	Allows you to save on toner by using less toner to print a document.
	Toll Save	Allows you to save on call costs by sending a fax at a preset toll-saving time. Using this feature you can take advantage of lower long distance rates at night for example.
7 FAX	Received Mode	Allows you to select the fax receiving mode.
	Phone Book	•Allows you to store frequently-dialed fax numbers using a one or two-digit speed dial or group number for automatic dialling, and edit the stored numbers. •Allows you to print a Phonebook list.
	Resolution	Adjusts the resolution of the documents for the current fax job.
	Broadcasting	Allows you to send a fax to multiple destinations.
	On Hook Dial	Engages the telephone line.
	Redial /Pause	Redials the last number in Standby mode or inserts a pause into a fax number in Edit mode.

4.2 Overview of System

SF-560/SF-565P can be divided into the following main constituent parts: Main Controller, Operator's Panel, PC Interface, Scanner, Line Interface and Power Supply. The Main Controller uses an SPGPm processor. The Operator's panel; (OPE) has its own MICOM which communicates serially with a UART built into the SPGPm processor. The Scanner uses an Image Processor chip (CIP4) to control the CIS. The Line Interface an FM336 integrated with the Main Board and communicates with the LIU at speeds up to 33.6Kbps. The Power Supply has both the SMPS and HVPS integrated on one PBA.

4.2.1 Main Controller.

The Main Controller of the SF-560/565P consists of two ASICs (CPU, Image Processor), Scanner, Fax Modem and Print sections. Bus Control, I/O Handling, Scanner, all motor drivers and the PC Interface function is controlled by the CPU.
It uses the chorus2. These control the peripherals and the Image Processing.

4.2.2 Line Interface.

This part connects the set with the PSTN. The main functions of this section are Line Interface, Line Monitoring, and connection to an external phone or TAD using the built in EXT connector..

4.2.3 Print Engine.

The Print Engine consists of the following sections: Frame, Paper Feed, Image Transfer, Imaging Unit, Toner Cartridge, Fuser, High Voltage Supply and Scanner. The set uses an Electro Photographic process using the LSU to develop a latent image on the OPC drum. The Toner process is a single part diamagnetic process. Copy and Transfer processes use a CIS Module.

4.2.4 Scanner.

The scanner is designed around a 200dpi CIS module. The CIS scanning width is maximum 216mm, effective width is 208mm. The SF560 operates at 200lpi, the SF565 operates at 300 lpi.

4.2.5 Summary of Main Unit

- Main Board

This is an integral unit having the Engine and Video control on a single PBA. It controls the Electrophotographic Process to take the image from the PC Interface and generate the Video Data for the LSU. It also manages the transfer of that image onto paper and the fusing of the image. The main PBA unit consists of the following circuits: Motor (Paper Feed and Exit) Driver, the Clutch driver, Pre-transfer Lamp Driver, the Fuser Driver and the Fan Driver. The signals from the Paper Feed Sensor, the Paper Empty Sensor, MP sensor and Exit Sensor are input to the Main Board from the SMPS/HVPS PBA.

- SMPS Board & HVPS Board

These are integrated into a singe PBA. The Power Supply uses the 110VAC/220VAC supply voltage to generate the DC Voltages used by the system. The SMPS has 3 output channels (+5V, +12V, +24V, +24VS) and supplies the Main Board and the OPE Board.

The HVPS creates the high voltages (THV/MHV/Supply/Dev) used for the electrophotographic process. The high voltage is created from the 24VS line from the SMPS. High Voltage output is supplied to the Toner, the OPC Cartridge and the Transfer Roller.

- OPE Board

The Operation Panel is driven by its own internal program using the OPE MICOM chip separate from the Main Board processor. Data is transferred using the UART Port in the Main Controller serially. This unit consists of the MICOM, the Key Pad Matrix and the LCD.

- Toner Cartridge

The Toner Cartridge consists of integrated Exposure and Developer units. The Exposure Unit consists of the OPC Drum and the Charge Roller, and the Developer Unit consists of the toner particles and its tank, the Supply Roller and the Developer Roller.

- LSU (Laser Scanner Unit)

This is the core of the laser printer. It converts the video data received from the computer into an electrostatic latent image on the surface of the OPC drum. This is achieved by controlling the laser beam and exposing the surface of the OPC drum to the laser light. A rotating polygon mirror reflects the laser light onto the OPC and each side of the mirror is one scan line. The OPC drum turns as the paper feeds to scan the image down the page.

The /HSYNC signal is created when the laser beam from LSU reaches the end of the polygon mirror and this signal is sent to the controller. The controller detects the /HSYNC signal to adjust the vertical line of the image on paper. In other words after the /HSYNC signal is detected the image data is sent to the LSU to adjust the left margin on the paper.

- Toner Transfer

Toner is transferred from the OPC drum onto the paper using a PTL (Pre-transfer Lamp) and a transfer roller. The PTL shines light onto the OPC, this reduces the electrical charge on the surface of the OPC surface and improves the efficiency of the transfer.
The transfer roller transfers toner from the OPC drum to the paper.
Life span: Print over 100,000 sheets (at 15~30°C)

- Fuser

This consists of a heat lamp, heat roller, pressure roller, thermistor and thermostat. By use of heat and pressure toner is caused to melt and adhere to the paper surface in order to complete the printing process.

4.3 System Layout

4.3.1 Feeding section

There is a universal cassette which automatically loads paper and the manual feed which supplies paper single sheet at a time. The cassette has a friction pad which separates paper to ensure single sheet feeding, and it has a sensor, which checks when the paper tray is empty.

- Feeding Method: Universal Cassette Type
- Feeding Standard: Center Loading
- Feeding Capacity: Cassette-250 sheets (75g/m^2, 20lb paper standard)
  Manual 1 sheet (Paper, OHP, Envelop, etc.)
- Paper detecting sensor: Photo sensor
- Paper size sensor: None

4.3.2 Transfer Ass'y

This consists of the PTL (pre-transfer lamp) and the Transfer Roller. The PTL shines a light onto the OPC drum. This lowers the charge on the drum's surface and improves transfer efficiency.
The transfer roller transfers toner from the OPC drum surface to the paper.

- Life expectancy: Over 60,000 sheets (at 15~30°C)

4.3.3 Driver Ass'y

- Gear driven power unit. The motor supplies power to the paper feed unit, the fuser unit, and the toner cartridge.

4.3.4 Fixing Part(Fuser)

- The fuser consists of the Heat Lamp, Heat Roller, Pressure Roller, Thermistor, and Thermostat. It fixes toner to the paper using pressure and heat to complete the printing job.

4.3.4.1 Temperature-Intercepting Device (Thermostat)

The thermostat is a temperature sensing device, which cuts off the power to the heat lamp to prevent overheating fire when the heat lamp or heat roller overheats.

4.3.4.2 Temperature Detecting Sensor (Thermistor)

The Thermistor detects the surface temperature of the heat roller, this information is sent to the main processor which uses this information to regulate the temperature of the heat roller.

4.3.4.3 Heat Roller

The surface of the Heat Roller is heated by the Heat Lamp. As the paper passes between the Heat and Pressure rollers the toner is melted and fixed permanently to the paper. The surface of the roller is coated with Teflon. This ensures that toner does not adhere to the roller surface.

4.3.4.4 Pressure roller

The Pressure Roller mounted under the heat roller, it is made of a silicon resin, and the surface of the roller is coated with Teflon. This ensures that toner does not adhere to the roller surface.

4.3.4.5 Safety Features

- To prevent overheating
  - 1st protection device: Hardware cuts off when overheated
  - 2nd protection device: Software cuts off when overheated
  - 3rd protection device: Thermostat cuts off mains power to the lamp.

- Safety device
  - Fuser power is cut off when the front cover is opened
  - LSU power is cut off when the front cover is opened
  - The temperature of the fuser cover's surface is maintained at less than 80°C to protect the user and a caution label is attached where the customer can see it easily when the rear cover is opened.

4.3.5 Scanner

- **Scan Image Controller**

  1.Minimum Scan Line Time : 1.23ms
  2.Scan Resolution : Color (Max 600 DPI)
  3.Scan Width : 208mm
  4.Function
  - White Shading Correction
  - Gamma Correction
  - CIS Interface
  - 256 Gray Scale

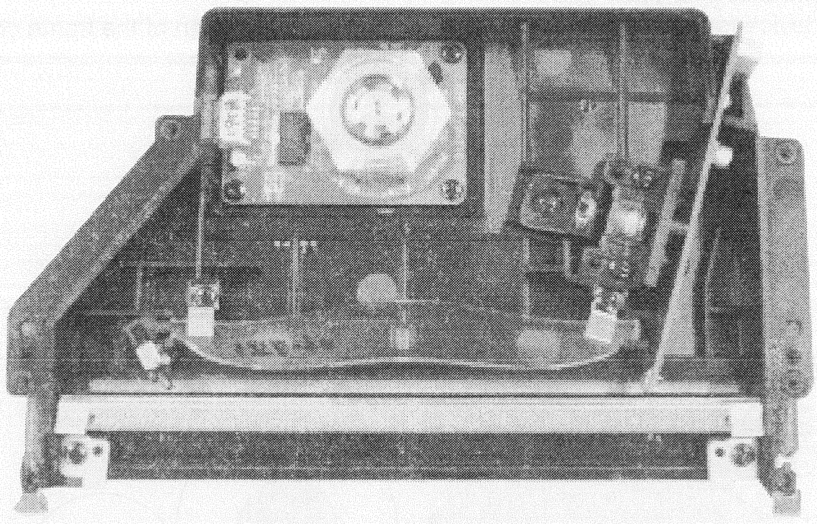
- **CIS Driver Circuit**
  - CIS Max Frequency : 0.5MHz
  - CIS Line Time : 5ms
  - White Data Output Voltage : Max 1.2V

- **Tx Driver Circuit**
  - Tx Motor Speed : Max 2200pps
  - Motor Driver : STA471A
  - Voltage : 24V DC

4.3.6 LSU (Laser Scanner Unit)

This is the core of the laser printer. It converts the video data received from the computer into an electrostatic latent image on the surface of the OPC drum. This is achieved by controlling the laser beam and exposing the surface of the OPC drum to the laser light. A rotating polygon mirror reflects the laser light onto the OPC and each side of the mirror is one scan line. The OPC drum turns as the paper feeds to scan the image down the page.

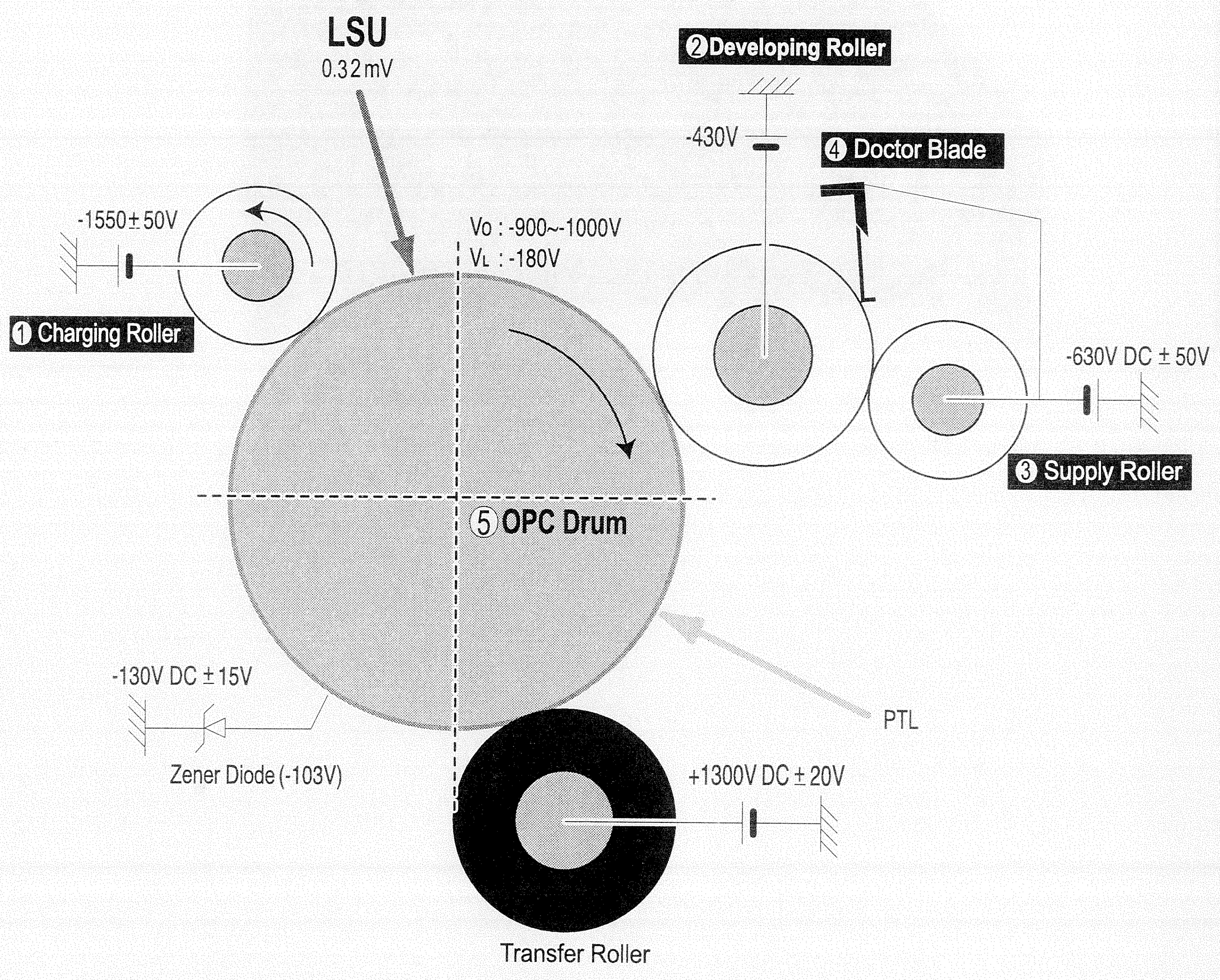
The /HSYNC signal is created when the laser beam from LSU reaches the end of the polygon mirror and this signal is sent to the controller. The controller detects the /HSYNC signal to adjust the vertical line of the image on paper. In other words after the /HSYNC signal is detected the image data is sent to the LSU to adjust the left margin on the paper.



4.3.7 Toner Cartridge

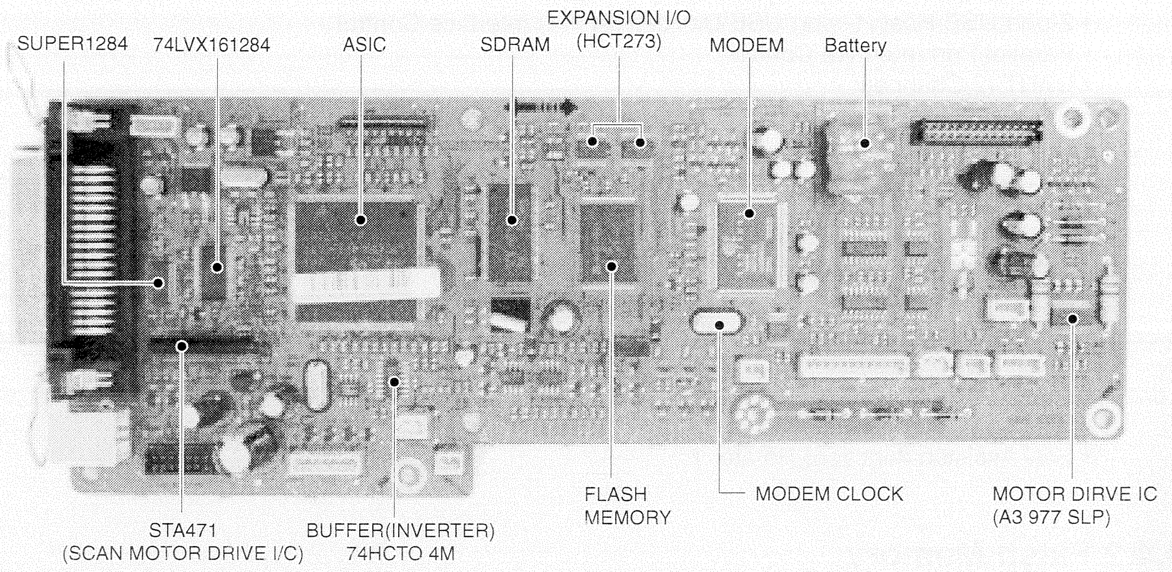
The toner cartridge is an integral unit containing the OPC unit and toner unit. The OPC unit consists of the OPC drum and charging roller, and the toner cartridge unit consists of the toner, supply roller, developing roller, and blade (Doctor blade)

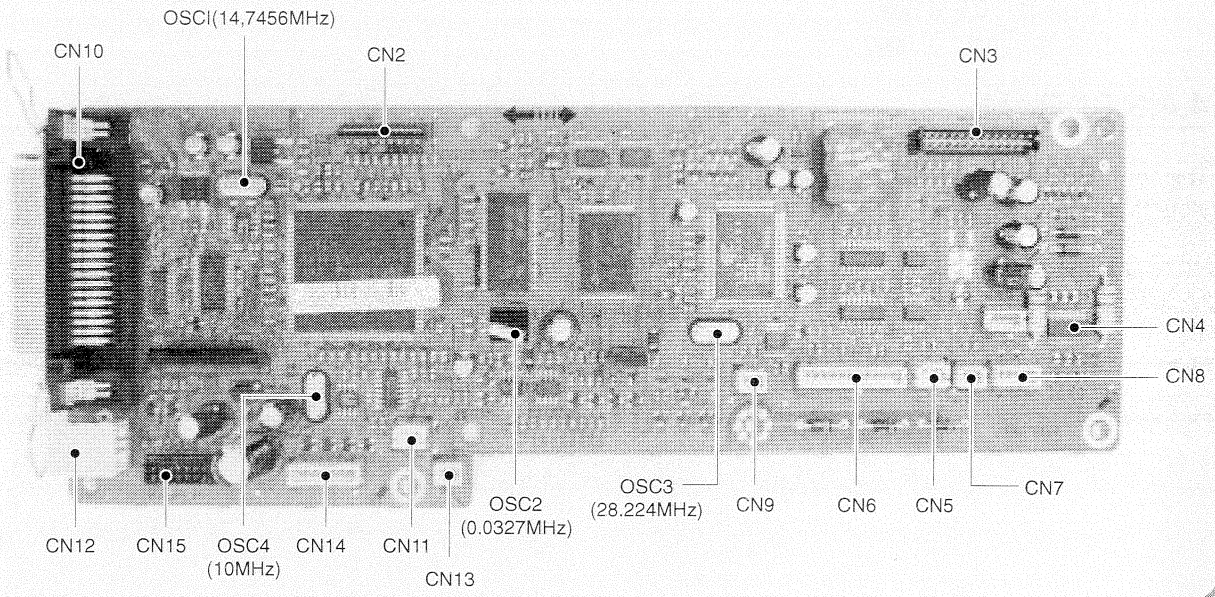
- Developing Method: Non magnetic 1 element contacting method
- Toner: Non magnetic 1 element shatter type toner
- The life span of toner: 3,000 sheets (IDC Pattern/A4 standard)
- Toner remaining amount detecting sensor: Yes
- OPC Cleaning: Electrostatic process
- Management of waste toner: Collect the toner using a Cleaning Blade
- OPC Drum protecting Shutter: Yes
- Classifying device for toner cartridge: ID is classified by interruption of the frame channel


LSU
0.32mV
②Developing Roller
-430V
④ Doctor Blade
-1550±50V
Vo : -900~-1000V
VL : -180V
① Charging Roller
-630V DC ± 50V
③ Supply Roller
⑤ OPC Drum
-130V DC ±15V
Zener Diode (-103V)
PTL
+1300V DC ± 20V
Transfer Roller

4.4 Main PBA(SPL Model)

The Engine Board and Controller Board have been integrated into a single PBA. This consists of the CPU, printer scanner and line control functions. The CPU functions as the bus controller, I/O handler, motor driver and PC inter-face. The main board sends the Current Image Video data to the LSU and manages the Electrophotographic printing process. Circuits on the PBA drive include the main motor (paper feed, cartridge, fuser), clutch driver, pre-transfer lamp driver, heat-lamp driver, CIS driver, scan motor driver, modem and fan driver.
The signals from the paper feed jam sensor and paper empty sensor are inputted to the main board from the power supply PBA..


EXPANSION I/O
SUPER1284
74LVX161284
ASIC
SDRAM
(HCT273)
MODEM
Battery
FLASH
MEMORY
MODEM CLOCK
MOTOR DIRVE IC
(A3 977 SLP)
STA471
(SCAN MOTOR DRIVE I/C)
BUFFER(INVERTER)
74HCTO 4M


OSCI(14,7456MHz)
CN10
CN2
CN3
CN4
CN8
CN12
CN15
OSC4
(10MHz)
CN14
CN11
CN13
OSC2
(0.0327MHz)
OSC3
(28.224MHz)
CN9
CN6
CN5
CN7

4.4.1 ASIC (Chorus2)

Samsung's S3C46Q0X 16/32-bit RISC micro controller is designed to provide a cost-effective, low power, small die size and high performance micro-controller solution for MFP.
The S3C46Q0X is developed using ARM7TDMI core, 0.18(m CMOS standard cell, and memory cell.

•Main function block

- 1.8V internal, 3.3V external (I/O boundary) microprocessor with 4KByte Cache
- Image Processor
- On-chip clock generator with PLL
- Memory & External Bank Control
- DMA Control (5-channel)
- Interrupt Control
- 2-port USB Host /1- port USB Device (ver 1.1) Interface Control
- Parallel Port Interface Control
- UART (2 Channel)
- Synchronous Serial Interface Control
- Timer (4 Channel)
- Watch Dog Timer
- Power control: Normal, Slow, Idle, Stop and SL_IDLE mode
- A/D Converter (10-bit, 2 Channel)
- General I/O Port Control
- Print Head Control
- Carrier Motor Control
- Paper Motor Control
- Tone Generator
- RTC with calendar function
- S/W Assistant function(Rotator)

4.4.2 Flash Memory

This stores the system program. Firmware upgrade is achieved by downloading from the new image using the PC Interface.

- Capacity : 0.5 M Byte
- Access Time : 70 nsec

4.4.3 SDRAM

This is used as a buffer, system working memory area, etc. while printing and scanning. This memory is also used to store faxes waiting to be sent or waiting to be printed.

- Access Time : 60 nsec

4.4.4 Sensor input circuit

1) Paper Empty Sensor

The Paper Empty sensor (Photo Interrupter) on the SMPS/HVPS PBA is monitored by the CPU on signal(nP_EMPTY, CN3-Pin 1). When the cassette is empty the printer displays a message on the LCD panel.

2) MP Sensing

Presence of paper in the MP tray is detected by operation of the MP Sensor (Photo Interrupter) on the SMPS/HVPS PBA. The CPU monitors signal(MP_EMPTY, CN3-Pin 13) to recognize paper in the MP, and paper is fed from MP if there is paper present.

3) Paper Feed Sensor, (Toner Cartridge Sensor)

When paper passes the actuator on the feed sensor, it is detected by the Photo interrupter. signal(nP_FEED, CN3-Pin 2) monitored by the CPU and this signal starts the process of creating the image after certain delay time If the feed sensor is not detected within 1 sec. after paper is fed, a paper Jam0 occurs. (Displayed on the LCD panel).
When a toner cartridge is inserted it also operates the Paper Feed sensor. A message is displayed on the LCD if no cartridge is detected.

4) Paper Exit Sensor

This detects that paper exits cleanly from the Machine using an exit sensor on the engine board and actuator on the frame. The monitors signal(P_EXIT, CN3-Pin 26) and detects the on/off time of the exit sensor and if jam status is detected then JAM2 is displayed the on the LCD panel.

5) Cover Open Senser

The Cover open sensor actuator is located on the front cover and the senor is in the main frame. When the front cover is opened the +24VS to the DC fan, solenoid, main motor, polygon motor part of LSU, HVPS that are cut off. The CPU monitors signal(COVER_OPEN) to recognize when the cover is opened.

6) DC FAN / SOLENOID Driving

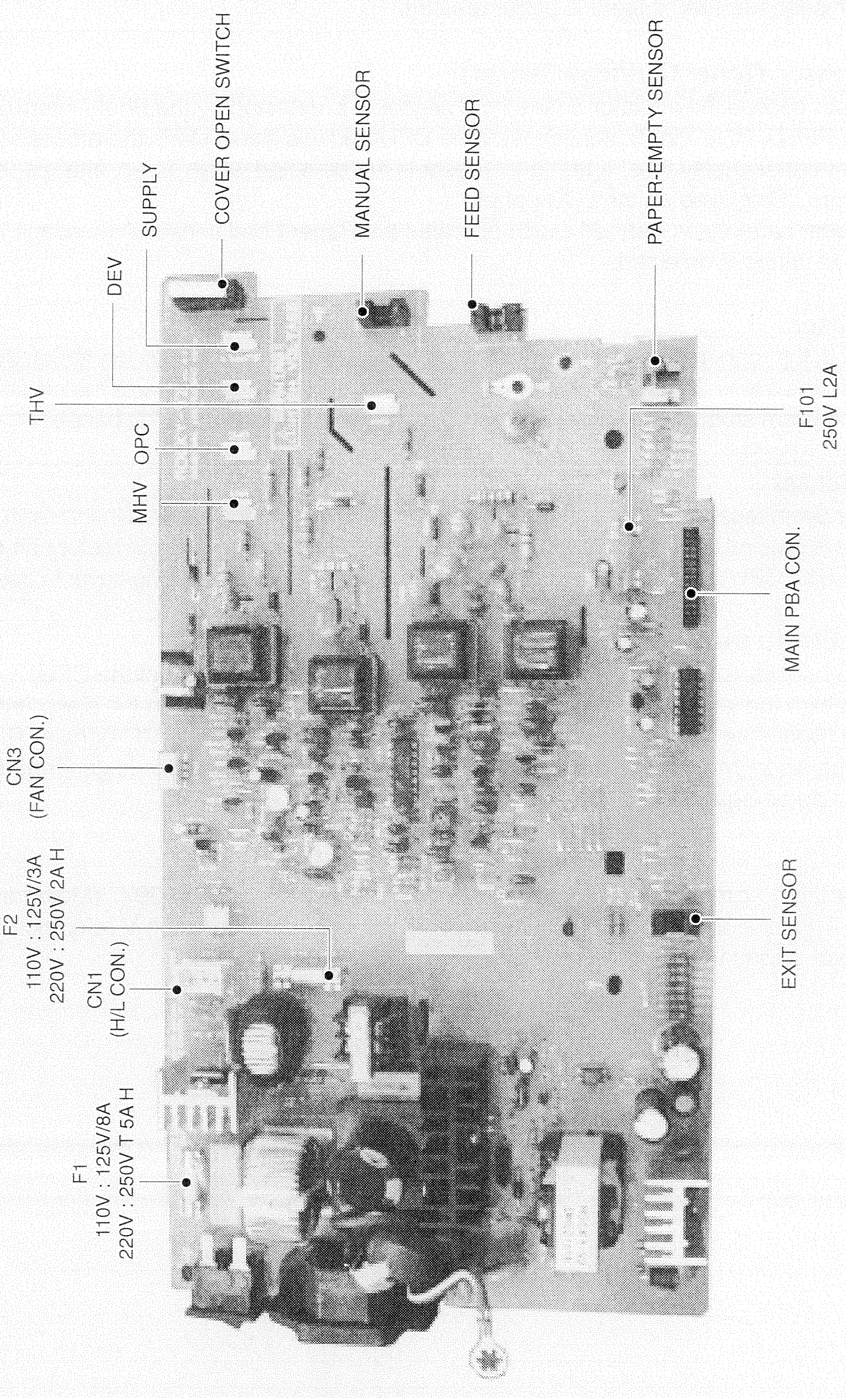
It is driven by a transistor and controlled by signal(FAN, CN3-Pin 24) bit of the CPU.
When it is high the fan is activated by turning on the TR, and it is off when the sleep mode is selected.
There are two solenoids and these are driven by the Paper Pick-up and MP signals. The drive time is 300ms. The diode protects the driving TR from the Back-EMF pulse which is generated when the solenoid is de-energized.

7) Motor Driving

The motor driving circuit is activated when the Driver IC is enabled. An A3977 (Motor driver IC) is used in this case. The resistance Rs value of sensing and the voltage value of the V reference can be changed by the motor driving voltage value.

4.5 SMPS & HVPS

The SMPS and HVPS are on one integrated board.
The SMPS supplies the DC power to the system. It takes either 110V or 220V and outputs the +5V, -5V/0.5A, 12V and 24V supplies to the main and ADF PBAs.
The HVPS creates the high voltage of THV/MHV/Supply/Dev and supplies it to the toner cartridge. The CPU is used to modify some of these voltage settings to provide the ideal voltages to create the image.
The HVPS part uses the 24V and outputs the high voltage for THV/MHV/BIAS and the outputted high voltage is supplied to the toner, OPC cartridge and transfer roller.


SUPPLY
COVER OPEN SWITCH
MANUAL SENSOR
FEED SENSOR
PAPER-EMPTY SENSOR
DEV
THV
F101
250V L2A
MHV
OPC
MAIN PBA CON.
CN3
(FAN CON.)
F2
110V : 125V/3A
220V : 250V 2A H
CN1
(H/L CON.)
EXIT SENSOR
F1
110V : 125V/8A
220V : 250V T 5A H

4.5.1 HVPS(High Voltage Power Supply)

1) Transfer High Voltage (THV+)

- Function : It is this voltage that transfers toner from the OPC Drum to the paper.
- Output voltage : +1300V DC±20V
- Error : IF THV (+) is not present, low density printing occurs due to toner on the OPC Drum not being transferred to the paper. It is possible that waste toner over-flow can occur if this condition persists. Ghost images may appear which repeat at 76mm intervals.

2) Charge Voltage (MHV)

- Function : It is this voltage that charges the surface of the OPC to -900V ~ -1000V.
- Output voltage : -1550V DC ± 50V
- Error : IF MHV is not present toner then since the OPC drum surface has no charge toner is attracted to the whole OPC surface. A black page is printed out when this happens.

3)Cleaning Voltage (THV-)

- Function : It removes toner contamination from the rear side of the paper by sending (-) polarity to the transfer roller forcing toner to transfer back to the to OPC drum.
- Output Voltage : +300V/-150V
- Error : Smudges and toner contamination on the reverse side of the printed page.

4) Developing Voltage (DEV)

- Function: It is this voltage that develops toner with on to the section of the OPC drum surface exposed by the LSU
  (Laser Scanning Unit).

* When printing the exposed voltage on the OPC is -180V, unexposed is -900~-1000V, and the exposing voltage on the DEV is -430V. Therefore toner with (-) polarity is developed onto an exposed section of the OPC.

- Output voltage: -430V DC ± 20V
- Error: a) If DEV is GND, print density gets extremely low.
  b) When DEV is floating due to poor connection between the frame and cartridge contacts etc., print density gets extremely high.

5) Supply Voltage (SUP)

- Function: It is this voltage that supplies toner to the developing roller.
- Output voltage: : -630V DC ± 50V (Use ZENER, DEV Gear)
- Error: a) When SUP is GND print density gets extremely low.
  b) If SUP is floating due to poor connection between the frame and cartridge contacts etc. density gets extremely low such that it is hard to see toner with the eyes

6) OPC Ground ZENER Voltage

- Function: It is this voltage that prevents image contamination under low temperature and low humidity environment conditions.
- When a set prints without an output voltage, -130V DC ± 15V is maintained on OPC ground. (-103V ZENER diode is connected to OPC ground)
- Error type: a) When the ZENER diode is - 0V there is no serious image problem in general environment, but in low temperature and low humidity environments it is possible that contamination can occur on the entire image
  b) When the ZENER diode is disconnected a blank page is printed out. (It is the same when a ZENER diode is disconnected from OPC ground.)

4.5.2 SMPS (Switching Mode Power Supply)

ItThis is the power source for the whole system. It is an independent module so that it is possible to use it for common use. It is mounted at the bottom of the set.

It consists of the SMPS section, which supplies the DC power to drive the system, and the AC heater control part, which supplies the power to the fuser. The SMPS has four output channels ((+5V, -5V, +12V, +12Vand +24Vs).

There are three kinds of power, 120V exclusive (America), 220V exclusive (Europe), and 220V for China (nations with unstable power supply).

1) AC Input

- Inputting rated voltage : AC 220V ~ 240V AC 100~127V
- Inputting voltage fluctuating range : AC 198V ~ 264V AC 90V ~ 135V
- Rated frequency : 50/60 Hz
- Frequency fluctuating range : 47 ~ 63 Hz
- Inputting Current : Under 4.0Arms/2.0Arms

2) Rated Power Output

NO	Item	CH1	CH2	CH3	CH4
1	Channel name	+5V	-5V	+24.0V	+24.0VS
2	CONNECTOR PIN	CON 2 3.3V PIN: 3, 4 GND PIN: 5, 6	CON2 -5V PIN : 7 GND PIN: 8	CON2 24V PIN: 11, 12 GND : 9, 10	CON2 24V PIN: 13, 16 GND : 18
3	Rated outputting voltage	+5V ± 5% (4.75 ~ 5.25V)	-5V ± 5% (-4.75~-5.25V)	+24V ± 10% (21.6 ~ 26.4V)	+24V ± 10% (21.6 ~ 26.4V)
4	Rated outputting current	1.5 A	0.5A	1.5 A	1.0 A
5	Ripple noise voltage	150mVp-p	150mVp-p	500mVp-p	500mVp-p
6	Maximum output	7.5W	0.6W	36.0W	24.0W

3) Consumption Power

NO	Item	CH1 (+5V)	CH2 (+12V)	CH3 (+24V)	CH4 (+24VS)	System
1	Stand-By	1.0 A	0.05A	1.0 A	0.5 A	AVG : 60 Wh : 220V AVG : 75 Wh : 110V
2	Operating	1.5 A	0.5A	1.5 A	1.0 A	AVG : 320 Wh
3	Sleep-Mode	0.3A	0.0A	0.0A	0.06A	AVG : 15 Wh

4) Length of Power Cord : 1830 ± 50mm

5) Power Switch : Fitted

6) Feature

- Insulating resistance : over 50MΩ (at DC500V)
- Insulating revisiting pressure : Must be no problem within 1min. (at 1500Vzc, 10mA)
- Leaking current : under 3.5mA
- Running current : under 40A peak (at 25°c, Cold start) Under 60A peak (in other conditions)
- Rising Time : Within 2Sec
- Falling Time : Over 20ms
- Surge : Ring Wave 6KV-500A (Normal, Common)

7) Environment Condition

- Operating temperature range : 0°c ~ 40°c
- Storage temperature range : -25°c ~ 85°c
- Storage humidity range : 30% ~ 90% RH
- Operating atmospheric pressure range : 1

8) EMI Requirement : CISPR ,FCC, CE, MIC, C-Tick,

9) Safty Requrement

- IEC950, C-UL, TUV,Semko,iK,CB, CCC, EPA,

4.5.3 Fuser AC Power Control

The Fuser (HEAT LAMP) is heated using AC power. The AC power is controlled by a Triac (THY1), a semiconductor switch. 'On/Off control' is achieved when the gate of the Triac is turned on/off by a Photo triac (PC1), this is an insulting part.
In the other words the AC control part is a passive circuit. It turns the heat lamp on/off by taking a signal from the engine control section. When the 'HEATER ON' signal is activated by the engine the LED of PC1 (Photo Triac) flashes. The flashing light causes the Triac (PC1) to switch and a voltage is supplied to the gate of Triac THY1.
As a result AC current flows in the heat lamp, and heat is produced.
On the other hand, when the signal is off, PC1 is off, the voltage is cut off at the gate of Triac THY1, this Triac is therefore off, and thus the heat lamp is turned off.

1) Triac (THY1) feature

- 12A,600V SWITCHING

2) Phototriac Coupler (PC3)

- Turn On If Current : 15mA ~ 50mA(Design: 16mA)
- High Repetive Peak Off State Voltage : Min 600V

4.6 Engine F/W

4.6.1 Feeding

If feeding from the cassette the drive of the pickup roller is controlled by controlling the pick-up solenoid. The on/off of the solenoid is controlled by controlling the general output port or the external output port. If feeding from the manual feeder the set decides to feed the paper according to the operation of the manual sensor, and by driving the main motor, insert the paper in front of the feed sensor. When paper moves the occurrence of a paper jam is judged as below.

4.6.1.1 Jam 0 – Jam in Feed area

- After a page was picked up, paper did not enter the unit due to a paper misfeed.
- After a page was picked up, paper entered but it did not reach the feed sensor in certain time due to slip, etc.
- After a page was picked up, if the feed sensor is not on try to pick up again. After retrying if the feed sensor is still not on after certain time, it is Jam 0.
  - this indicates that the leading edge of the paper doesn't pass the feed sensor within a certain time.
- Even though the paper reaches the feed sensor, the feed sensor does not turn on.
  - this indicates that the leading edge of the paper already passed the feed sensor or that the sensor is fauty.

4.6.1.2 Jam 1 – Jam inside the print engine

- After the leading edge of the paper passes the feed sensor, the trailing edge of the paper does not pass the feed sensor within certain time. (During this time the feed sensor cannot be Off)
- After the leading edge of the paper passes the feed sensor, the paper does not reach the exit sensor within certain time. (The exit sensor cannot be On during this time)
  - There is already paper between the feed sensor and the exit sensor.

4.6.1.3 Jam 2 – Jam in the Exit area

- After the trailing edge of the paper passes the feed sensor the trailing edge of the paper does not pass the exit sensor within certain time.

4.6.2 Drive

The main motor drives the paper feed, developing unit and the Fuser It is driven by software which controls the acceleration, constant speed and deceleration profiles. The Motor is managed with an A3977 driver IC and controlled by step and enable signals from the CPU.

4.6.3 Transfer

The charging voltage, developing voltage and the transfer voltage are controlled by PWM (Pulse Width Modulation). Each output voltage is changeable according to the PWM duty cycle. The transfer voltage used when the paper passes the transfer roller is decided by environment recognition. The resistance value of the transfer roller changes due to the surrounding environment in the room or within the set, this change in resistance in turn changes the value of the voltage due to loading. This voltage is fed back into the set through the A/D converter. Based on this fed back value the PWM cycle is changed to maintain the required transfer voltage

4.6.4 Fusing

The temperature of the heat roller's surface is detected according to the resistance value of the thermistor. The thermistor resistance is measured using the A/D converter and thus the CPU can determine the temperature of the heat roller. The AC power is controlled by comparing the target temperature to the value from the thermistor. If the value from the thermistor is out of the controlling range while controlling the fusing process, the error stated in the table occurs. (For the domestic model, the Q-PID method has been applied.)

4.6.4.1 Error Type

Error	Description
Open heat error	When warming up, it has been lower than 68 °C over 25 sec
Lower heat error	• Standby: It has been lower than 100°C over 25 sec • Printing: - 2 consecutive pages: it has been lower than 145°C over 5 sec - 3 consecutive page; it has been 40°C lower than the fixed fusing temperature over 4 seconds.
Over heat error	It have been higher than 220°C over 3 seconds

4.6.5 LSU

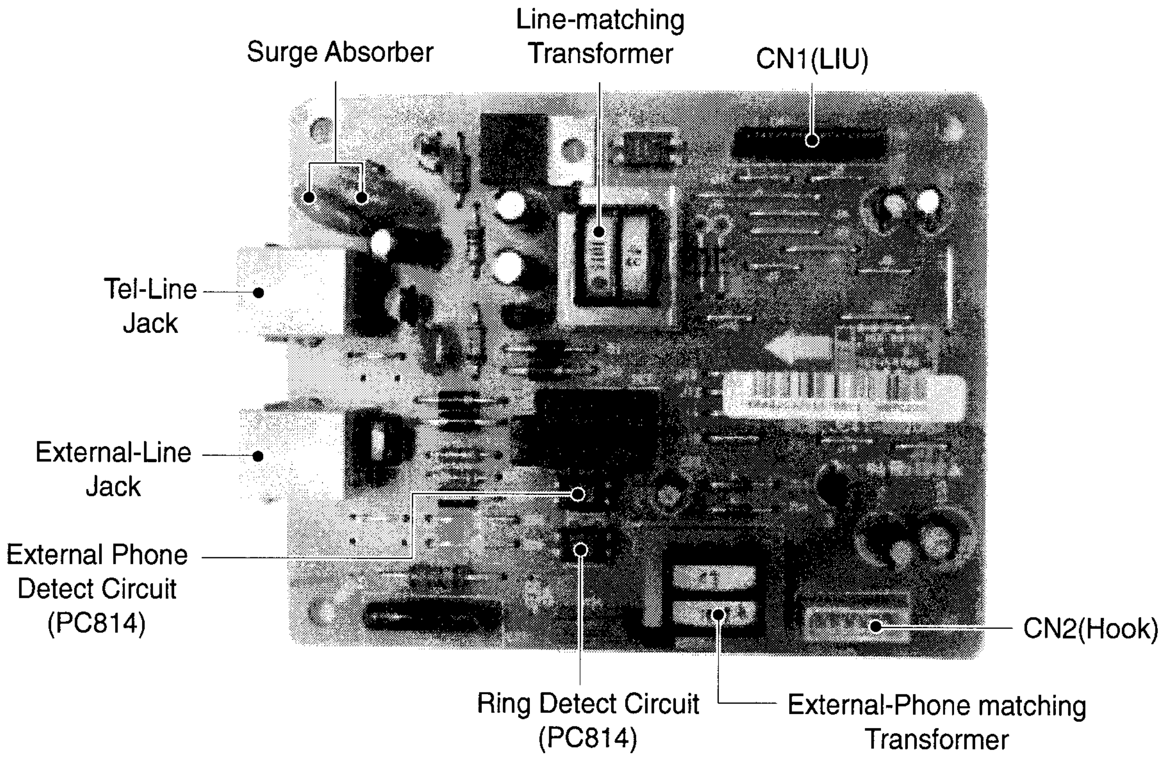
The LSU consists of the LD (Laser Diode) and the polygon motor control. When the printing signal occurs, the LD is turned on and the polygon motor is enabled. When the light sensor detects the beam, Hsync occurs. When the polygon motor speed becomes a normal, LReady occurs. If these two conditions are satisfied, the status bit of the LSU controller register becomes 1 ant the LSU is judged to be ready. If the two conditions are not satisfied, the error shown in the table below occurs.

Error	Description
Polygon motor error	When the polygon motor's speed doesn't become a normal
Hsync error	The polygon motor's speed is normal, but the Hsync signal is not created.

4.7 LIU PBA

The LIU board is the Line interface unit, it is a circuit for interfacing a telephone line with a modem. The circuit consists of a matching transfer to conform to the impedance of the receiving telephone line and a circuit to conform to the impedance of a modem.

Also, there is a ring detect circuit to detect a ring signal from the switchboard and a surge absorber to protect against lighting strike surges on the incoming line.


Line-matching Transformer
Surge Absorber
CN1(LIU)
Tel-Line Jack
External-Line Jack
External Phone Detect Circuit (PC814)
CN2(Hook)
Ring Detect Circuit (PC814)
External-Phone matching Transformer

4.8 OPE PBA

The OPE board consists of various function keys and an LCD to display set status and operator messages. A MICOM (HOLTEC HT48R50) and drives the LEDs and LCD. Communication between the OPE and the CPU on the main board is serial (related signals are /Reset, TXD, and RXD).

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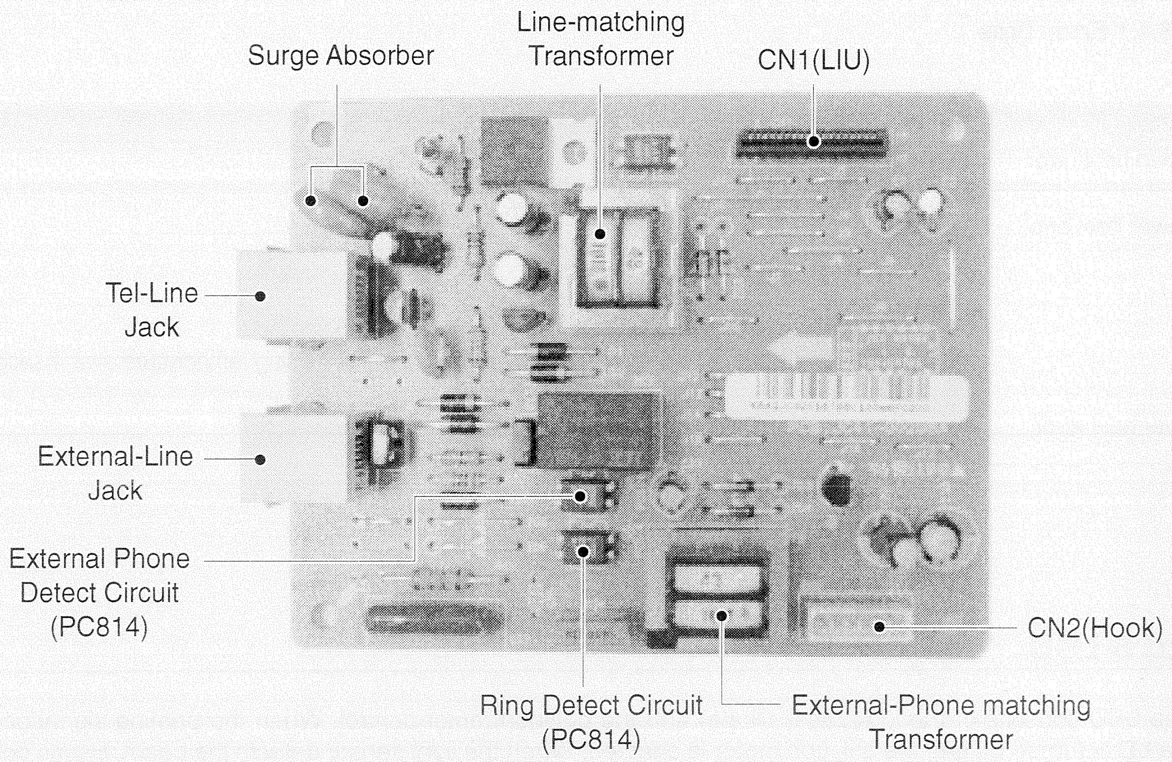
Surge Absorber
Line-matching Transformer
CN1(LIU)
Tel-Line Jack
External-Line Jack
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5. Disassembly and Reassembly

5.1 General Precautions on Disassembly

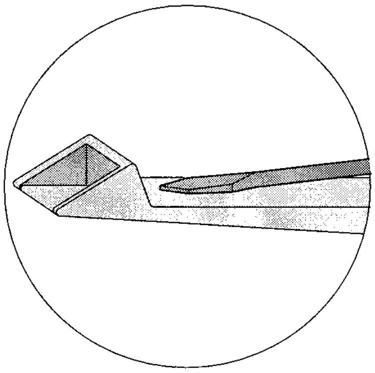
When you disassemble and reassemble components, you must use extreme caution. The close proximity of cables to moving parts makes proper routing a must.
If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

Whenever servicing the machine, you must perform as follows:

1. Check to verify that documents are not stored in memory.
2. Be sure to remove the toner cartridge before you disassemble parts.
3. Unplug the power cord.
4. Use a flat and clean surface.
5. Replace only with authorized components.
6. Do not force plastic-material components.
7. Make sure all components are in their proper position.

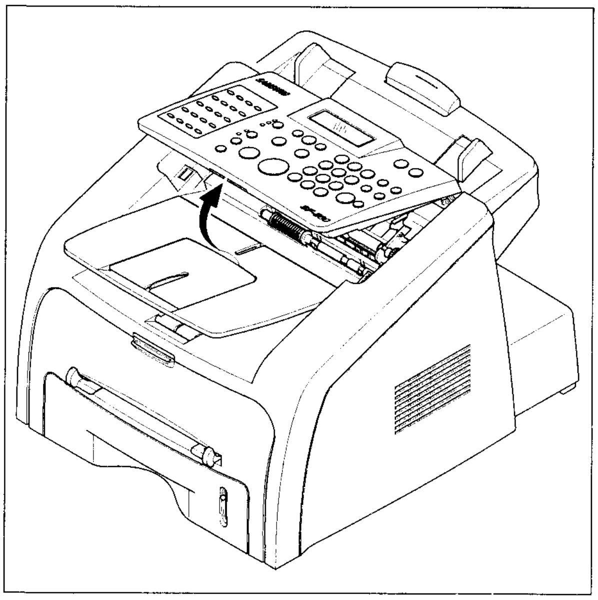
Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.

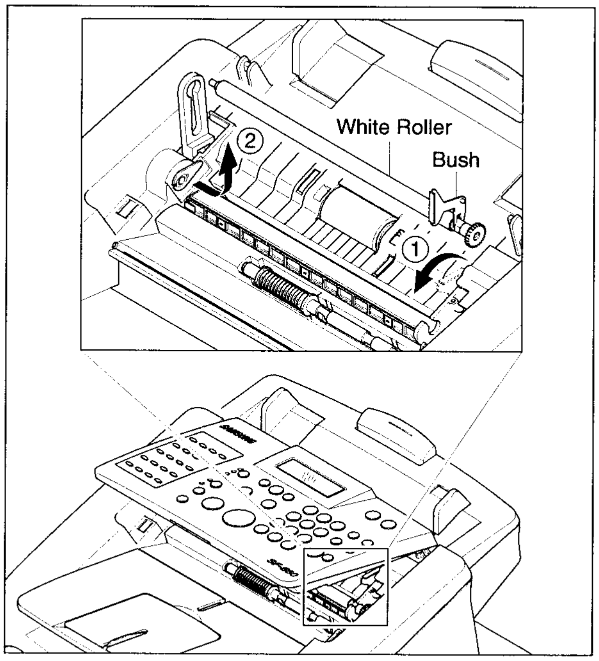


5.2 White Roller Ass,y

1. Open the OPE Unit.



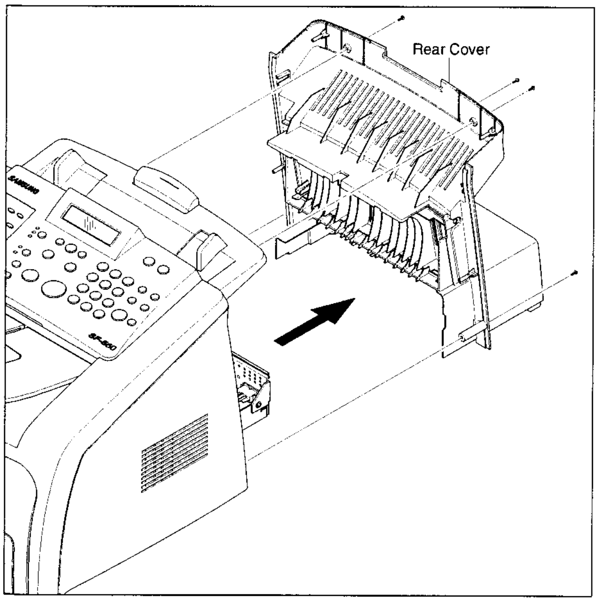
2. Push the Bushing on RH end of the roller slightly inward, then rotate it until it reaches the slot as shown below. Then lift the roller out.



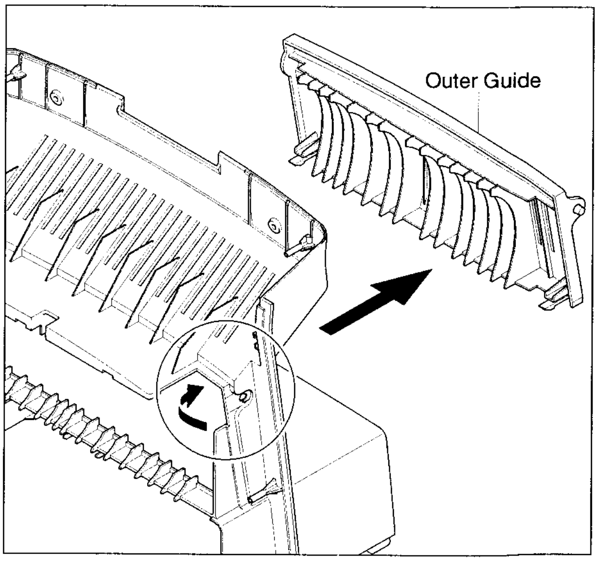
Note: Check the roller for any dirt. Clean with a soft cloth dampened with water.
If the roller is heavily worn replace it with a new one.

5.3 Rear Cover

1. Remove the four screws securing the Rear Cover and remove it, as shown below.



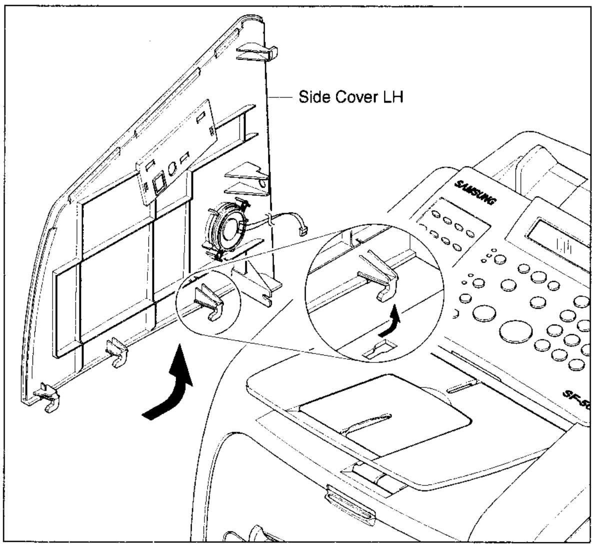
2. Unlatch the Face up Cover Securing the Rear Cover, as shown below. Then lift the Face up Cover out.



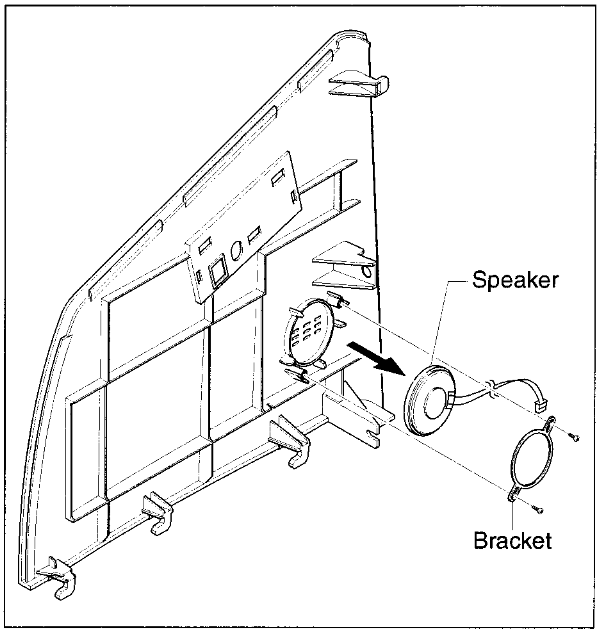
5.4 Side Cover LH

1. Before you remove the Side Cover LH, you should remove:
   - Remove handset and cradle.

2. Release the latches from Frame Ass,y in the direction of the arrow, as shown below. Take care to disconnect speaker harness.


Side Cover LH
SAMSUNG
SF-5

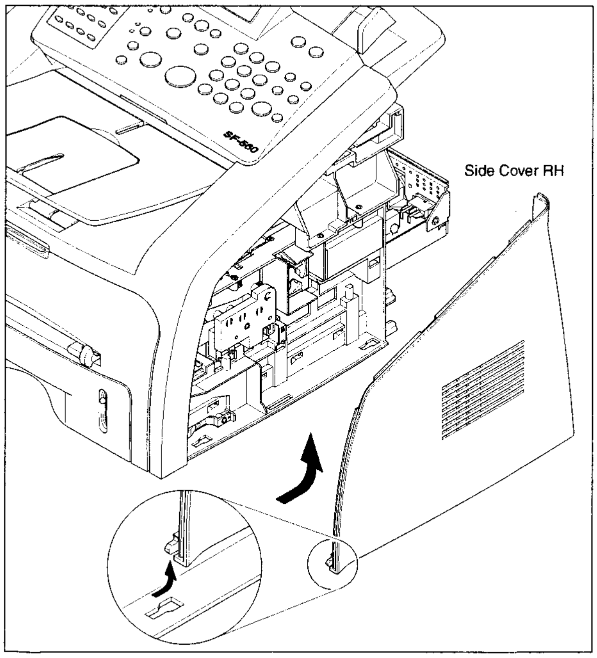
3. If necessary, remove the two screws securing the Speaker and remove it.


Speaker
Bracket

5.5 Side Cover RH

1. Before you remove the Side Cover RH, you should remove: - Rear Cover (see section 5-3)

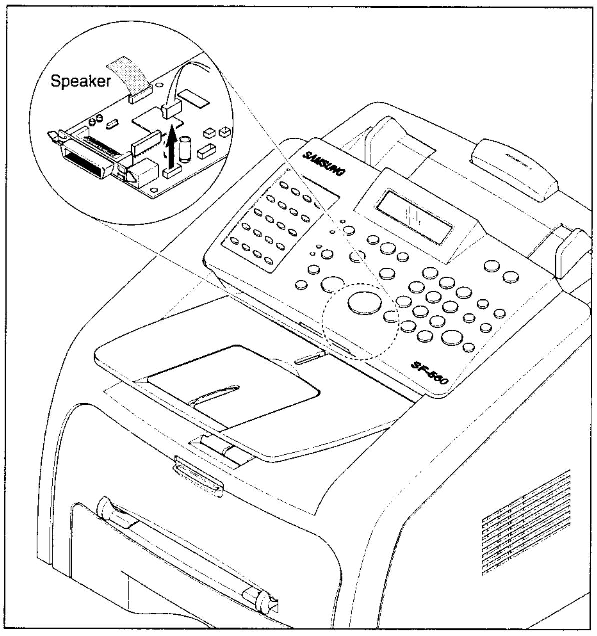
2. Release the latches from Frame Ass'y in the direction of the arrow, as shown below.


Side Cover RH
SF-560

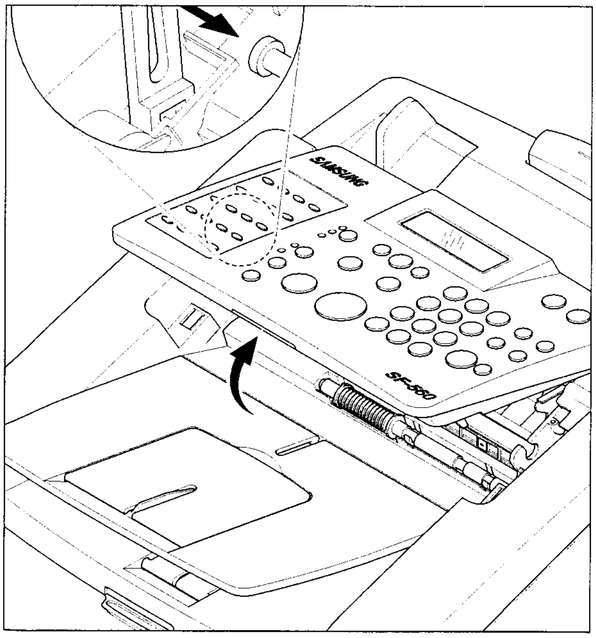
5.6 OPE Unit

1. Before you remove the OPE Unit, you should remove:
   - Rear Cover (see section 5-3)

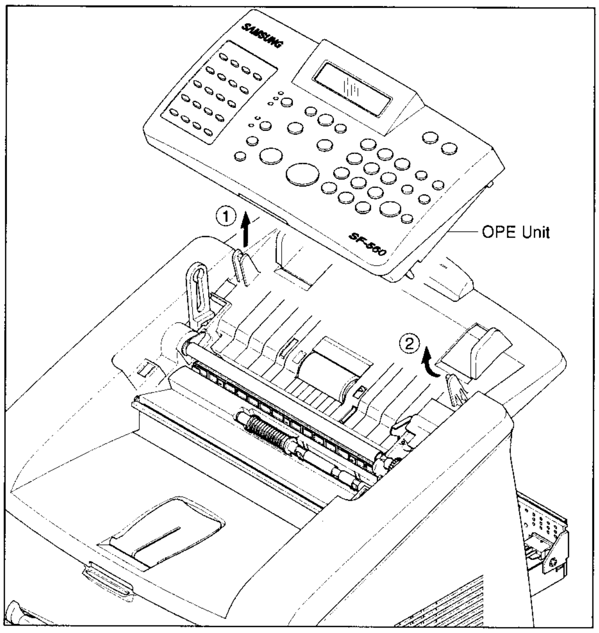
2. Unplug the OPE connector from the Main PBA and Scan Motor Harness, as shown below.
   Then remove the two screws securing the Ground Cable and remove it. Note the position of the bronze earth plate.


Speaker
SAMSUNG
SF-560

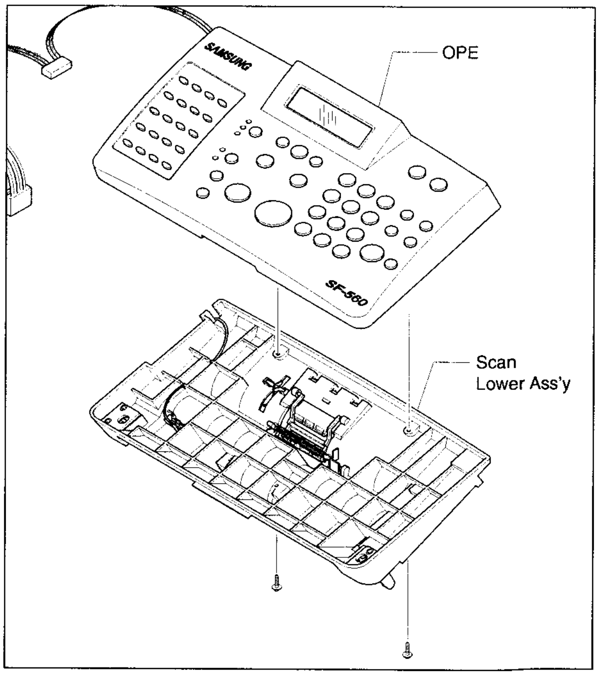
3. Open the OPE and release the latch from Holder, as shown below.


SAMSUNG
SF-560

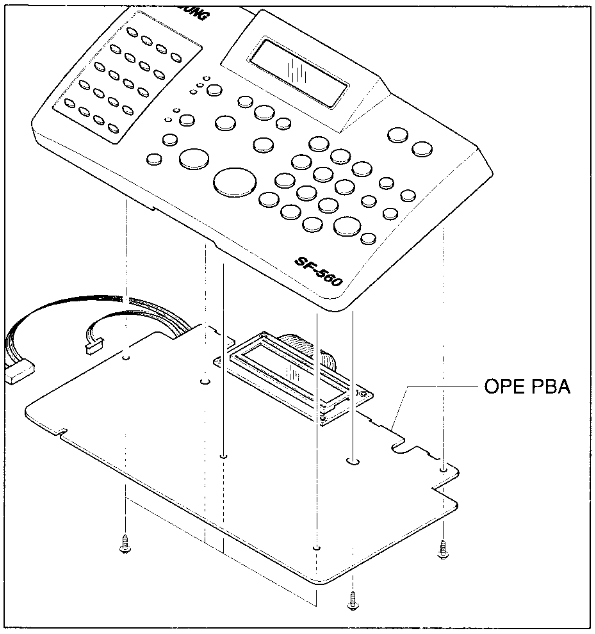
4. Carefully release the latches from Top Cover in the direction of the arrow, as shown below.


SAMSUNG
①
②
OPE Unit
SF-560

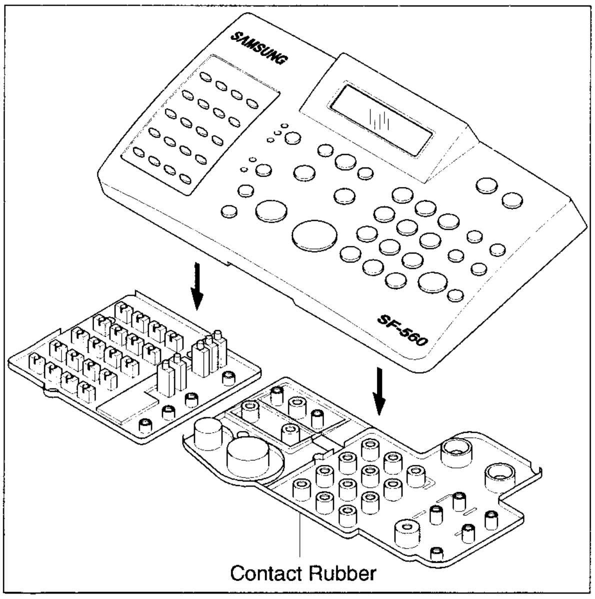
5. Remove the two screws securing the Scan Lower Ass'y and remove it.


SAMSUNG
OPE
SF-560
Scan Lower Ass'y

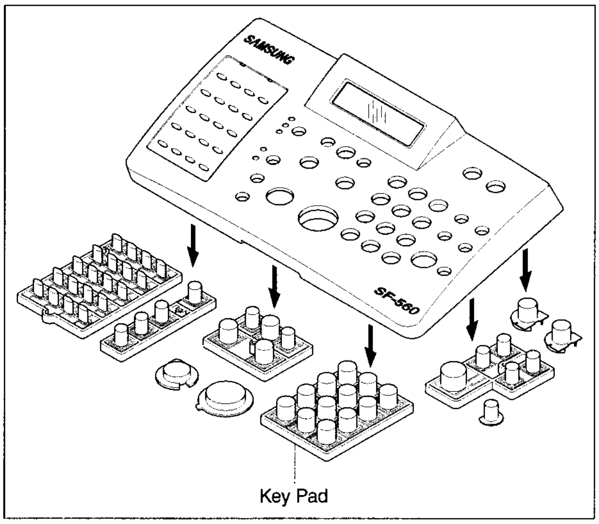
6. Remove the seven screws securing the OPE PBA and remove it.


SF-560
OPE PBA

7. Remove the Contact Rubber from the OPE Cover.


SAMSUNG
SF-560
Contact Rubber

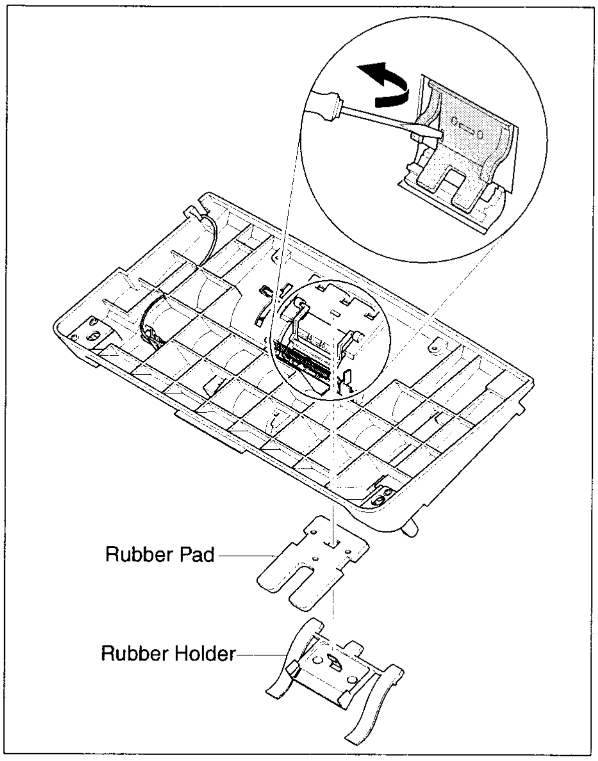
8. Remove the Key Pad from the OPE Cover.


SAMSUNG
SF-560
Key Pad

5.7 ADF Rubber Pad

1. Before you remove the ADF Rubber Pad, you should remove:
   - Rear Cover (see section 5-3)
   - OPE Unit (see section 5-6)

2. Insert a flat-blade screwdriver into the slot as shown below, and release the latches.
   Take out the Rubber Holder and the Rubber Pad.



Note:

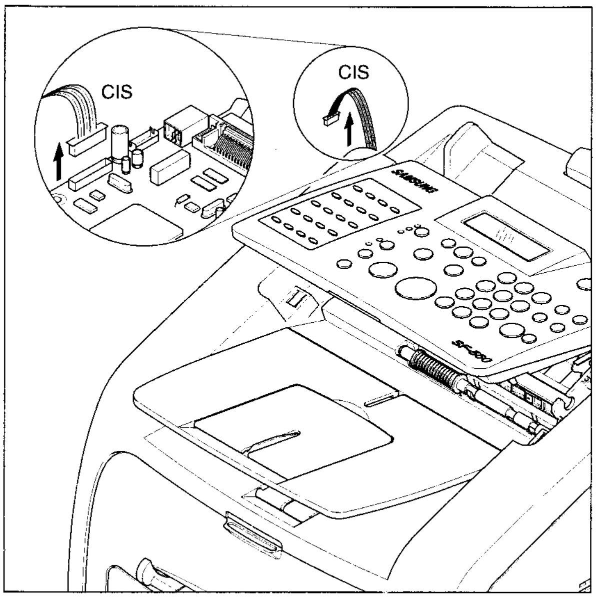
- *When you reassemble the Rubber Pad, be sure that the Rubber Pad and Holder fit into the Guide Boss and the Holder latches fit into the corresponding holes. Then push firmly until it clicks.*

- *Clean the surface of the Rubber Pad with ethyl alcohol. After wiping it, be sure to dry it. Check the rubber for wear. If the wear reaches 1/2 it's original thickness, replace it with a new one.*

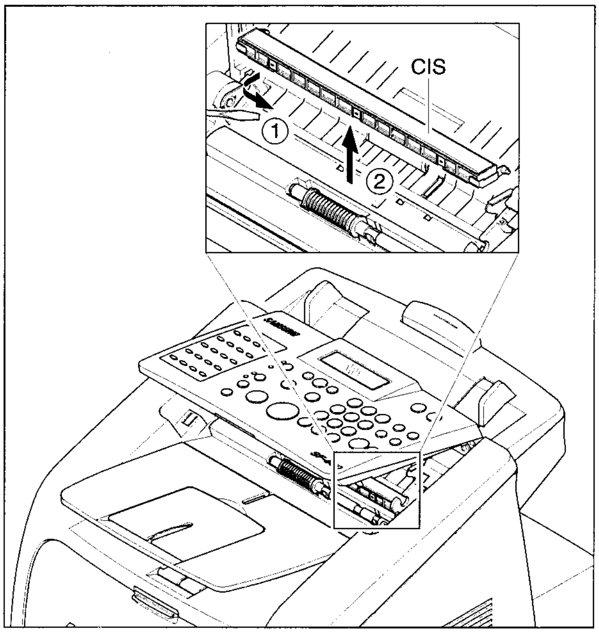
5.8 CIS

1. Before you remove the CIS, you should remove:
   - White Roller Ass'y (see section 5-2)
   - Rear Cover (see section 5-3)

2. Unplug the CIS connector from the Main PBA. (CN14)

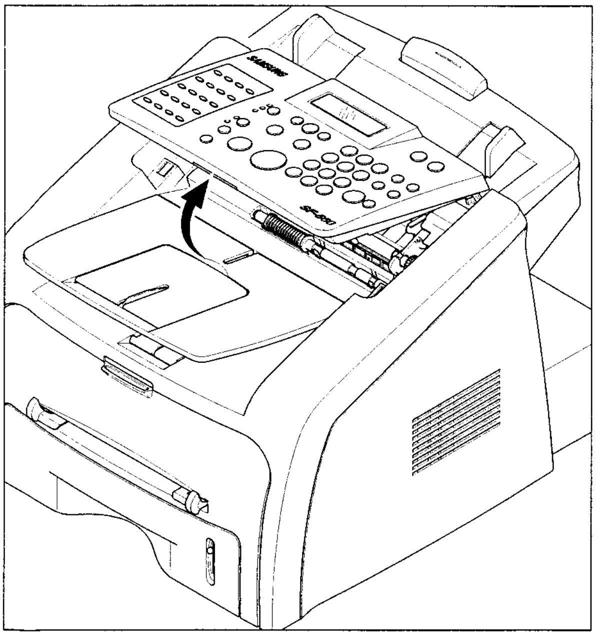


3. Unlatch the CIS using a flat-blade screwdriver and release it, as shown below. Disconnect harness from CIS unit.

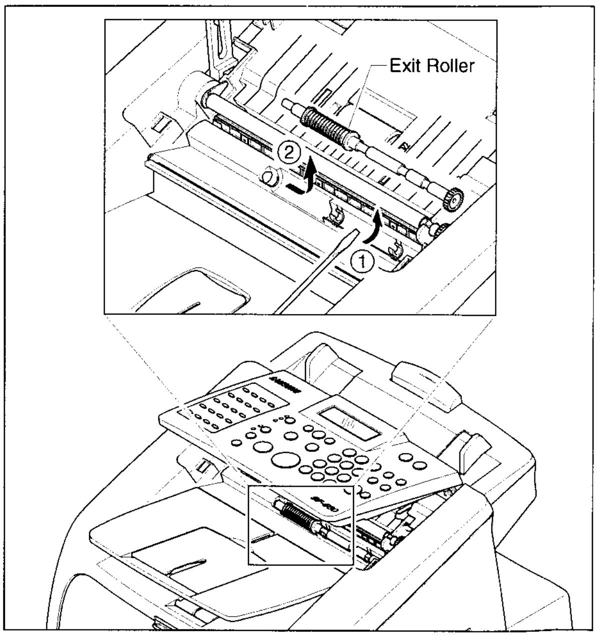


5.9 Exit Roller

1. Open the OPE Unit.

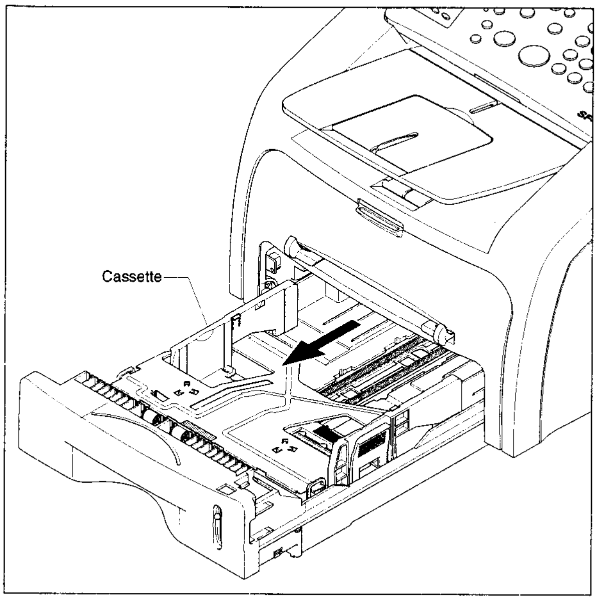


2. Pull up the Exit Roller using a flat-blade screwdriver and remove it, as shown below.

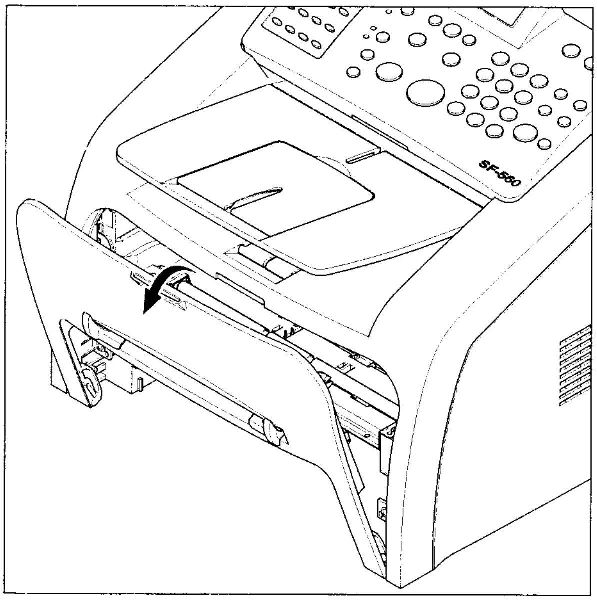


5.10 Front Cover Ass'y

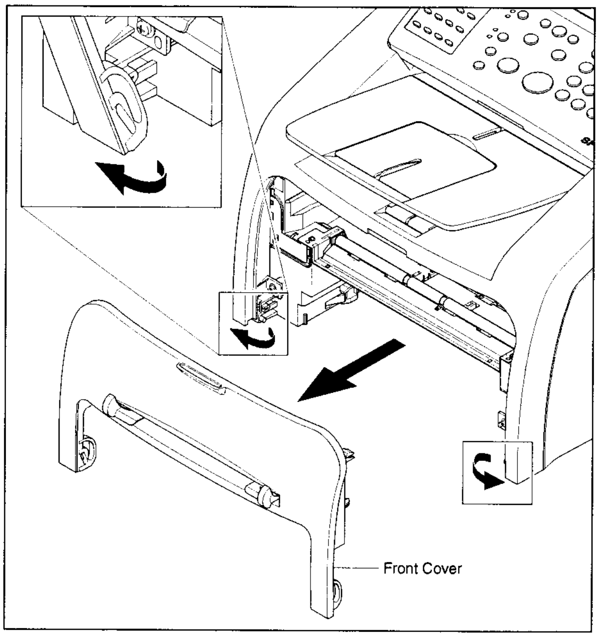
1. Take out the Cassette.



2. Open the Front Cover.



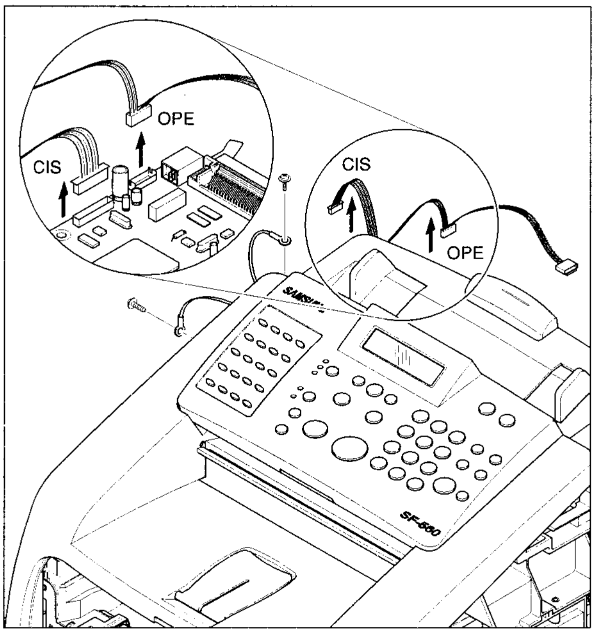
3. Unlatch the Front Cover from the Frame Ass'y. Then remove the Front Cover, as shown below.


Front Cover

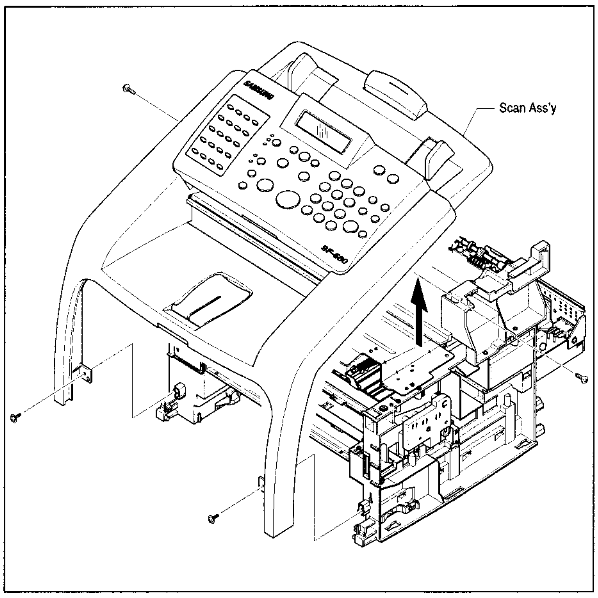
5.11 Scan Ass'y

1. Before you remove the Scan Ass'y, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)
   - Side Cover RH (see section 5-5)
   - Front Cover (see section 5-10)

2. Unplug the three connectors (OPE, CIS, scan motor) from the Main PBA. Then remove the two Ground Cables, as shown below.


OPE
CIS
CIS
OPE
SAMSUNG
SF-560

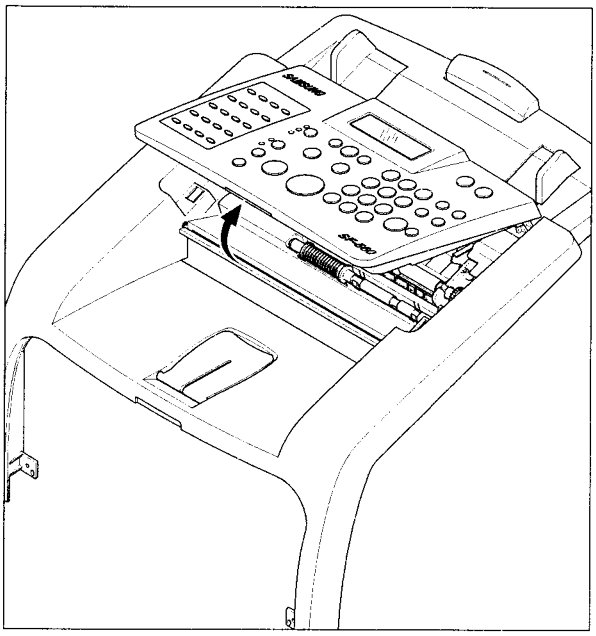
3. Remove the four screws securing the Top Cover and remove the Scan Ass'y, as shown below.


Scan Ass'y
SAMSUNG
SF-560

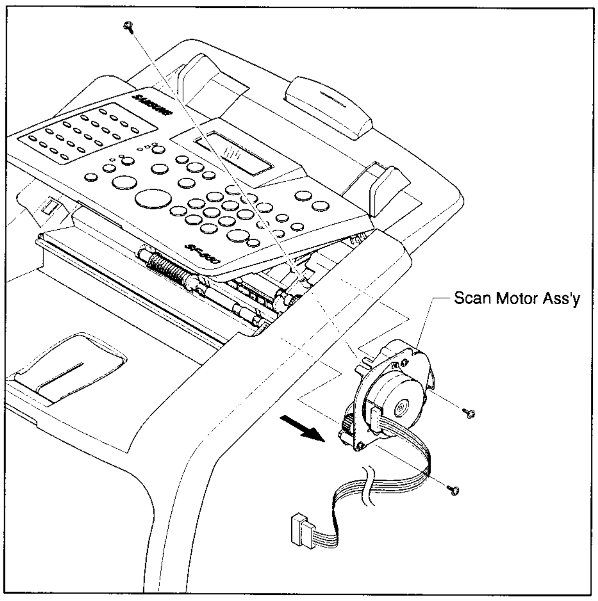
5.12 Scan Motor Ass'y

1. Before you remove the Scan Motor Ass'y, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)
   - Side Cover RH (see section 5-5)
   - OPE Unit (see section 5.6)
   - Front Cover (see section 5-10)
   - Scan Ass'y (see section 5-11)

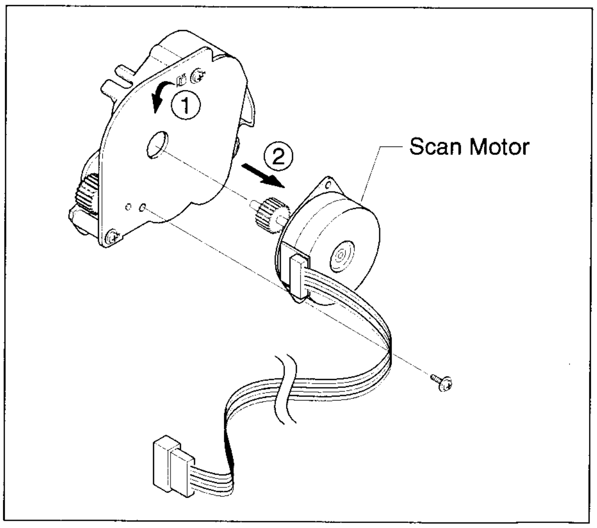
2. Open the OPE Unit.



3. Remove the three silver screws securing the Scan Motor Ass'y and remove it.



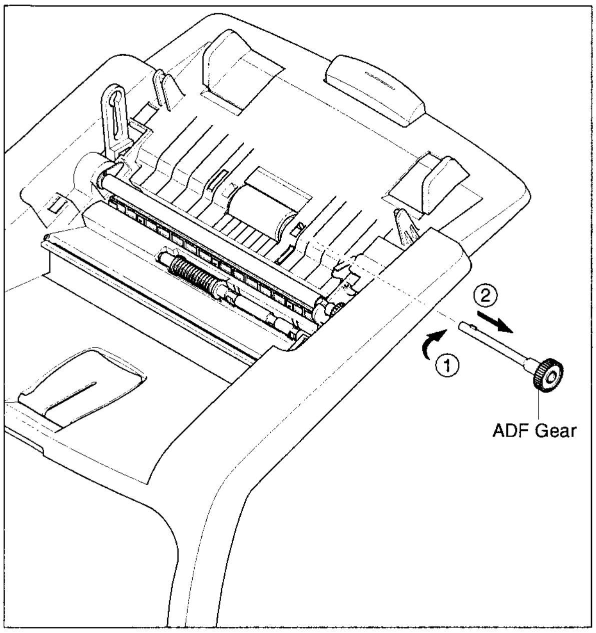
4. If necessary, remove the one screw securing the Scan Motor and release the latches from Motor Bracket in the direction of the arrow, as shown below.



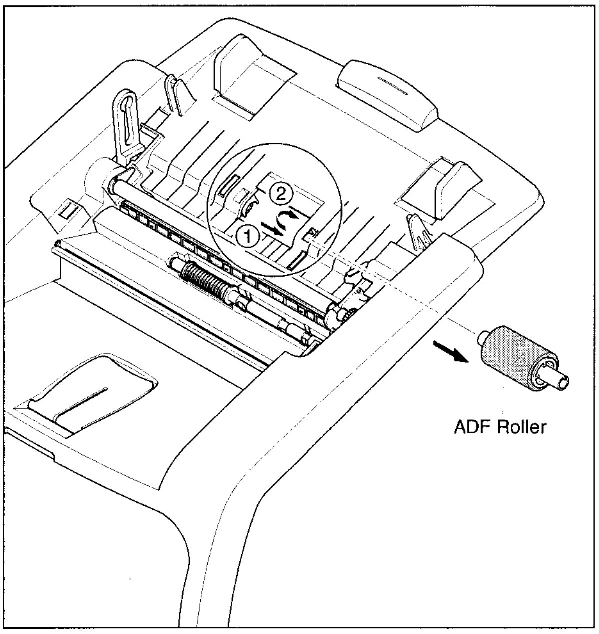
5.13 ADF Roller

1. Before you remove the ADF Roller, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)
   - Side Cover RH (see section 5-5)
   - Front Cover (see section 5-10)
   - Scan Ass'y (see section 5-11)
   - Scan Motor Ass'y (see chapter 5-12)

2. Carefully release the ADF Gear from the ADF Roller, as shown below.



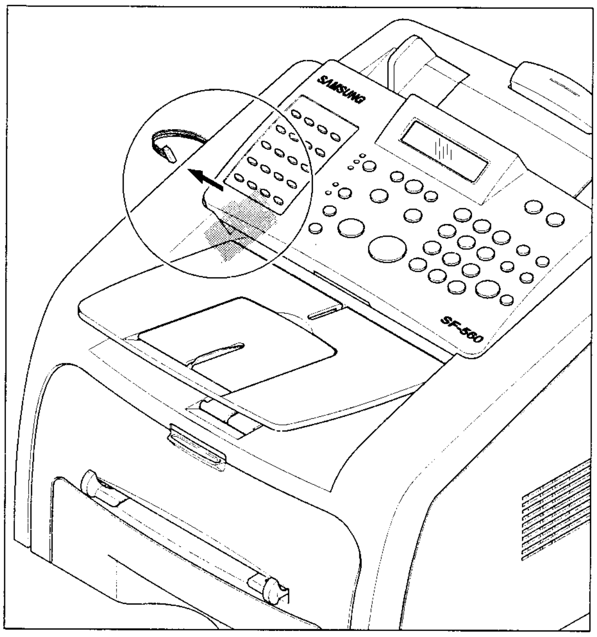
3. Carefully release the ADF Roller from Top Cover in the direction of the arrow, as shown below.



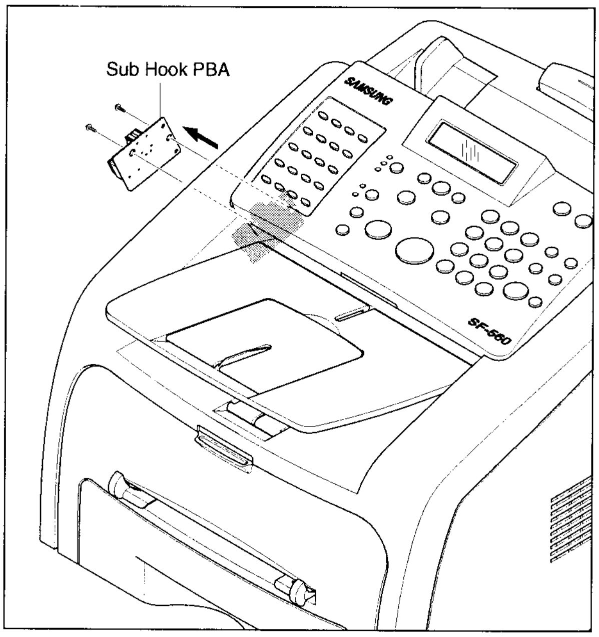
5.14 Sub Hook PBA

1. Before you remove the Sub Hook PBA, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)

2. Unplug the one connector from the Sub Hook PBA, as shown below.


SAMSUNG
SF-560

3. Remove the two screws securing the Sub Hook PBA and remove it.

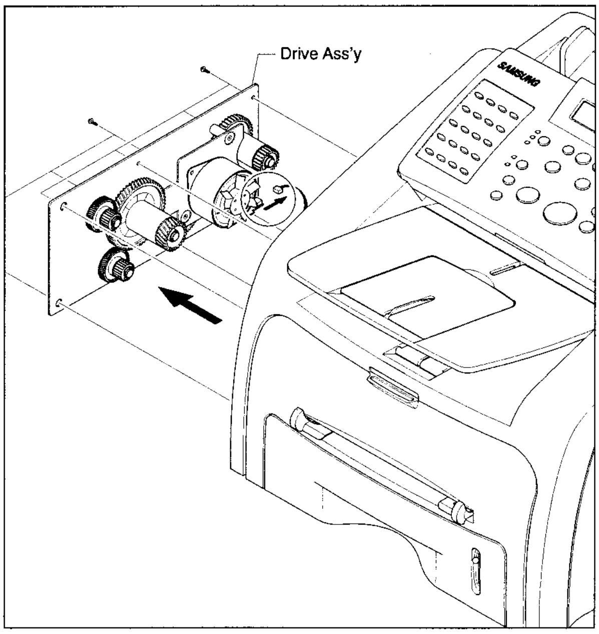

Sub Hook PBA
SAMSUNG
SF-560

5.15 Drive Ass'y

1. Before you remove the Drive Ass'y, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)

Note : When re-fitting the Drive Ass'y tighten the screws in the order that they are numbered on the base plate.

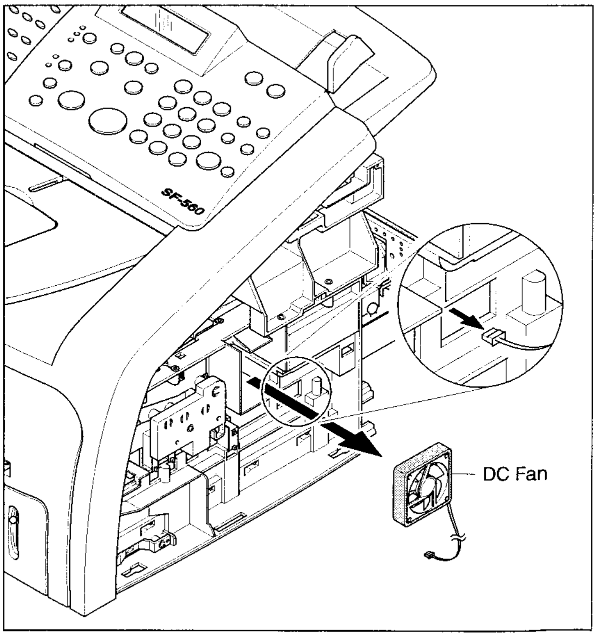
2. Remove the six screws securing the Drive Ass'y and remove it. Then unplug the one connector from the Drive Motor, as shown below.



5.16 DC-Fan

1. Before you remove the Fan, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover RH (see section 5-5)

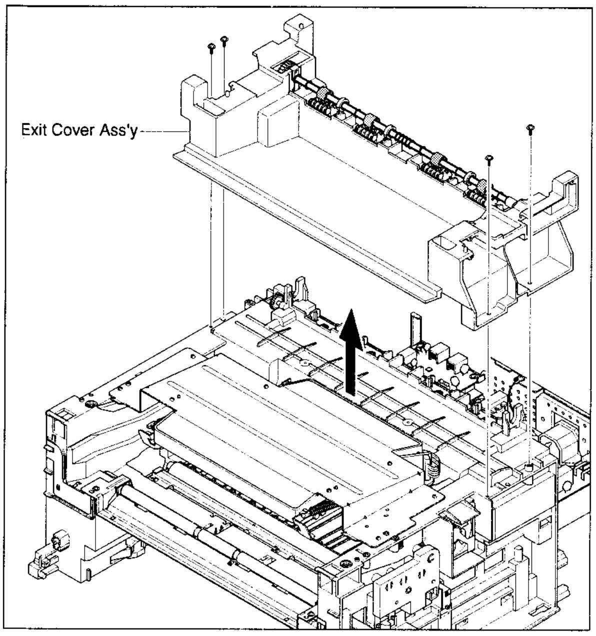
2. Unplug the one connector from the SMPS, as shown below. Then take out the Fan.



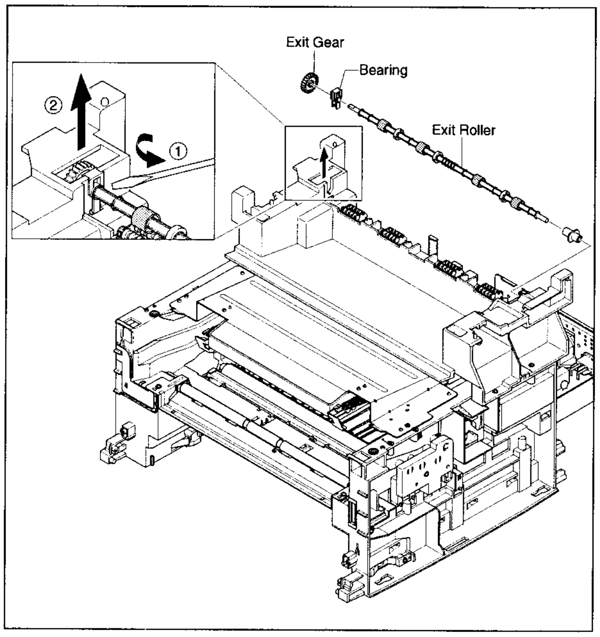
5.17 Exit Cover Ass'y

1. Before you remove the Exit Cover Ass'y, you should remove:
   - Scan Ass'y (see section 5-11)
   - Sub High PBA (see section 5-14)

2. Remove the four screws securing the Exit Cover Ass'y and remove it, as shown below.


Exit Cover Ass'y

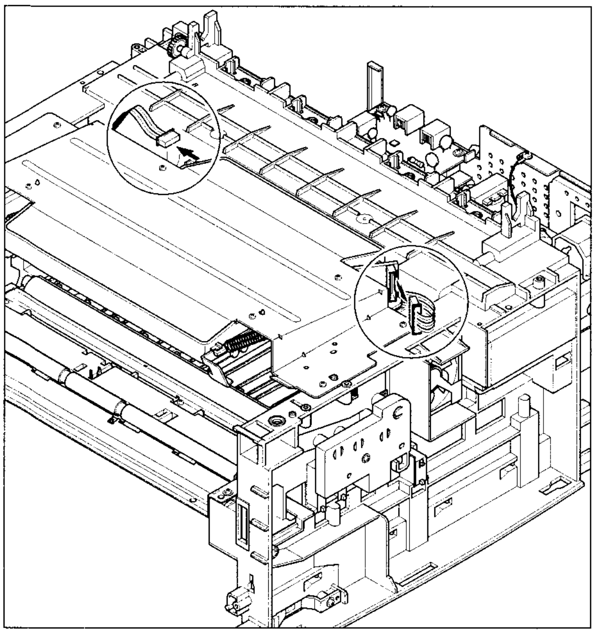
3. Remove the Exit Gear and Bearing using a flat-blade screwdriver, as shown below.
   Then take out the Exit Roller.


Exit Gear
Bearing
Exit Roller
②
①

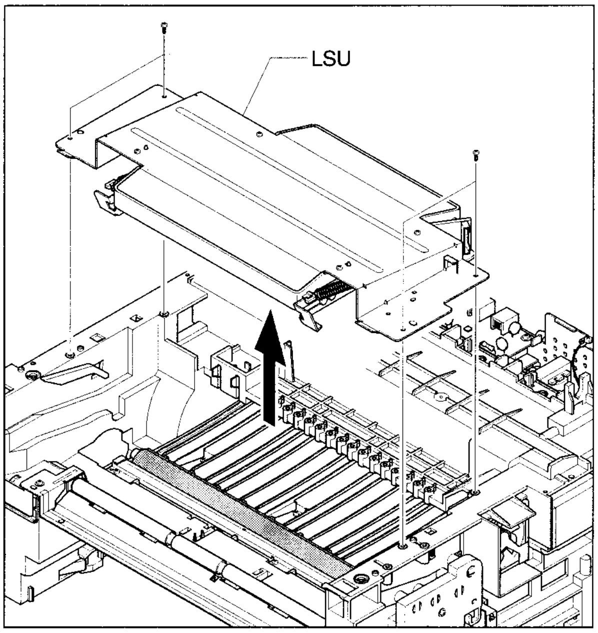
5.18 LSU-Unit

1. Before you remove the LSU, you should remove:
   - Scan Ass'y (see section 5-11)

2. Unplug the two connectors from the LSU, as shown below.



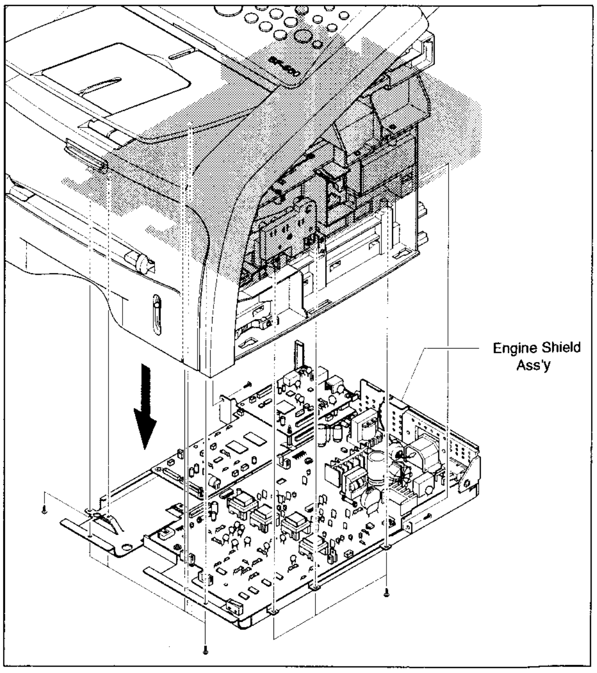
3. Remove the four screws securing the LSU and remove it.



5.19 Engine Shield Ass'y

1. Before you remove the Engine Shield Ass'y, you should remove:
   - Rear Cover (see section 5-3)
   - Side Cover LH (see section 5-4)
   - Side Cover RH (see section 5-5)

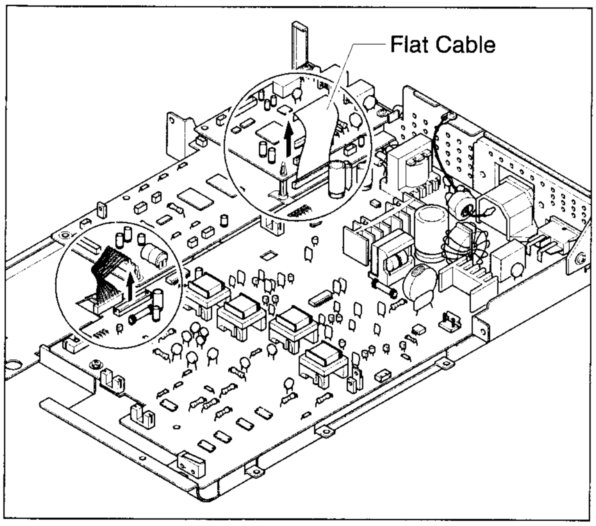
2. Remove the twelve screws securing the Engine Shield Ass'y and remove it. Then unplug the all connectors from the SMPS and Main PBA, Main High PBA.



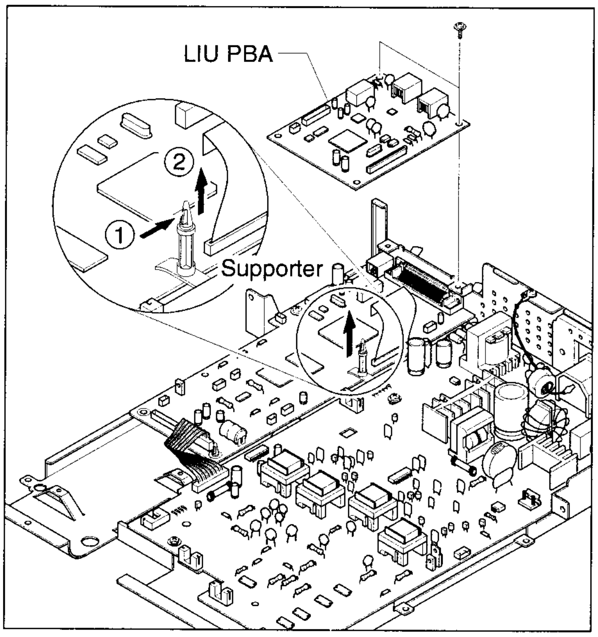
5.20 LIU PBA

1. Before you remove the Main High PBA, you should remove:
   - Engine Shield Ass,y (see section 5-19)

2. Unplug the Flat Cable and one connector, as shown below.



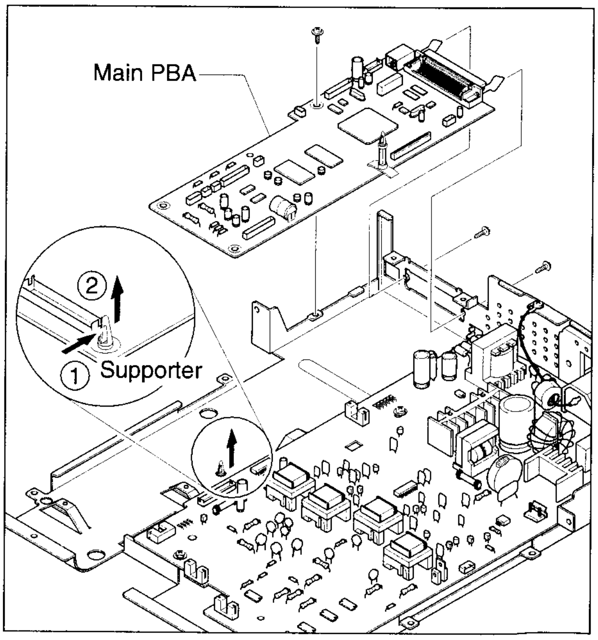
3. Remove the two screws securing the Main High PBA and remove it. Then carefully release the latches from Supporter, as shown below.



5.21 Main PBA

1. Before you remove the Main PBA, you should remove:
   - Engine Shield Ass,y (see section 5-19)

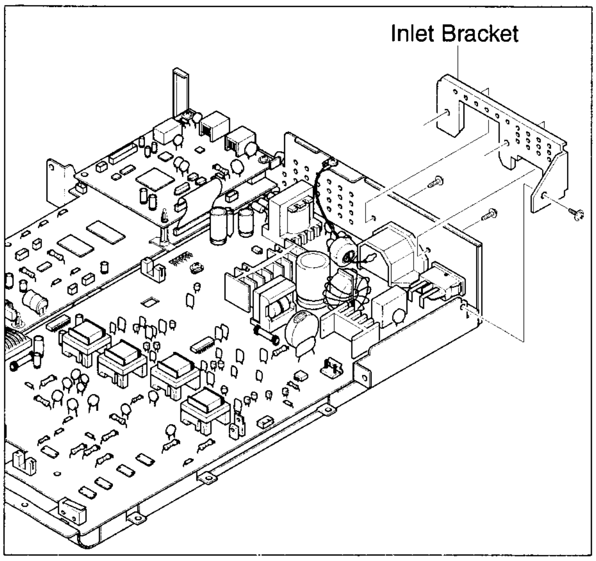
2. Remove the three screws securing the Main PBA and remove it. Then carefully release the latches from Supporter, as shown below.



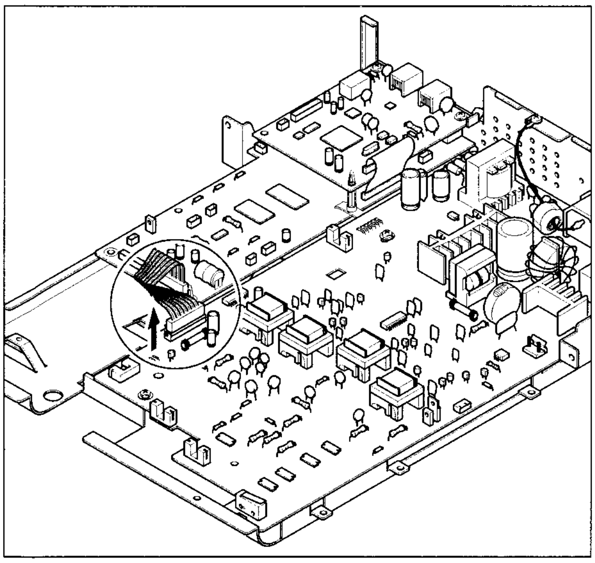
5.22 SMPS

1. Before you remove the SMPS, you should remove:
   - Engine Shield Ass,y (see section 5-19)

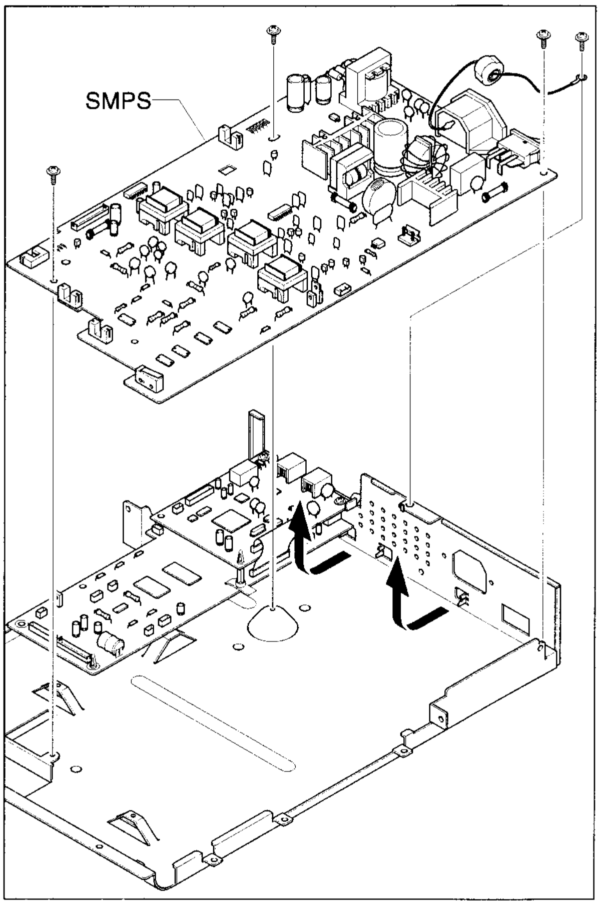
2. Remove the three screws securing the Inlet Bracket and remove it.



3. Unplug one connector.



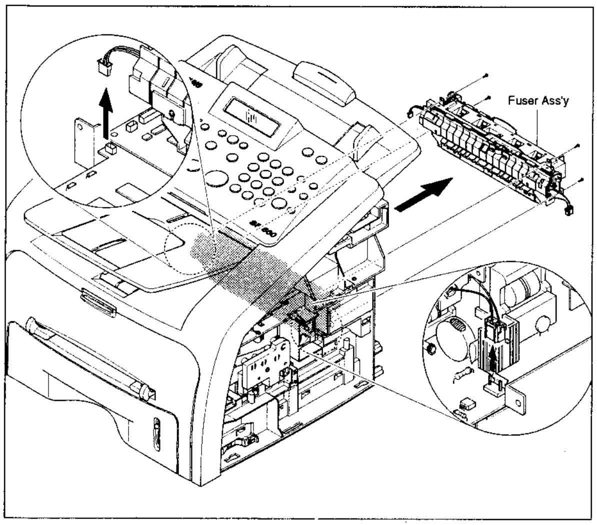
4. Remove the four screws securing the SMPS and remove it. Then Lift the SMPS out, as shown below.



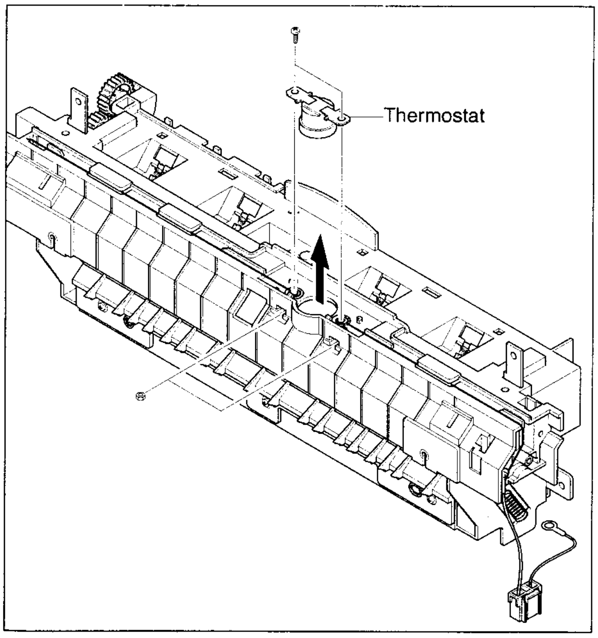
5.23 Fuser Ass'y

1. Before you remove the Fuser Ass'y, you should remove:
   - Engine Shield Ass,y (see section 5-19)

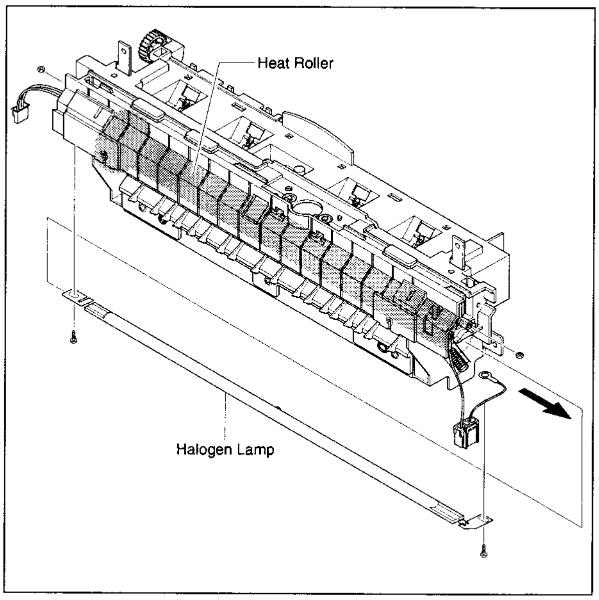
2. Unplug the two connectors from the Main PBA and SMPS, as shown below. Then remove the four screws securing the Fuser Ass'y and remove it.



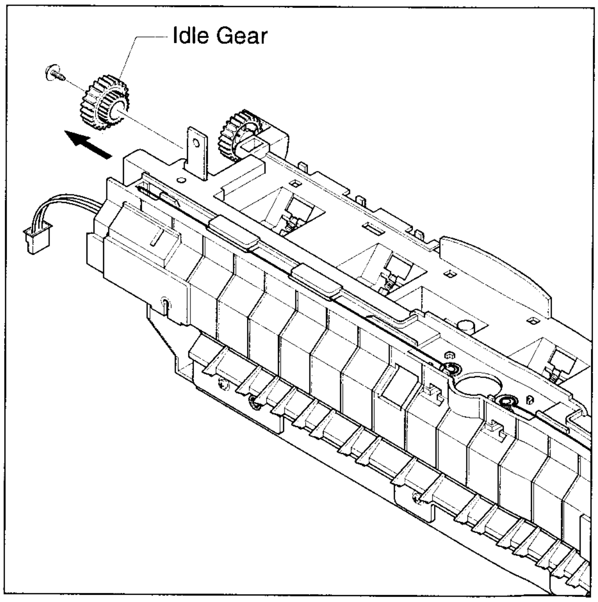
3. Remove the two screws securing the Thermostat. Then lift the Thermostat out.



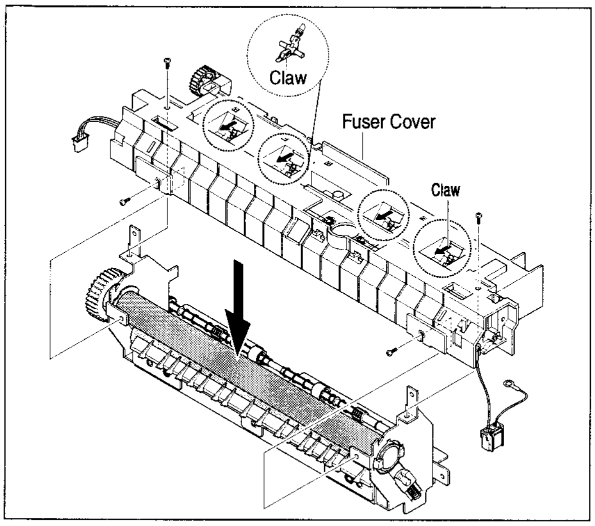
4. Remove the two screws securing the Halogen Lamp. Then take out the Halogen Lamp from the Heat Roller, as shown below.



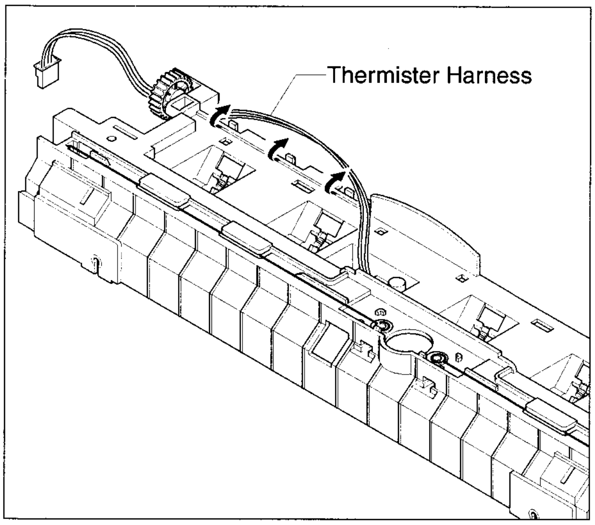
5. Remove one screw securing the Idle Gear and remove it.



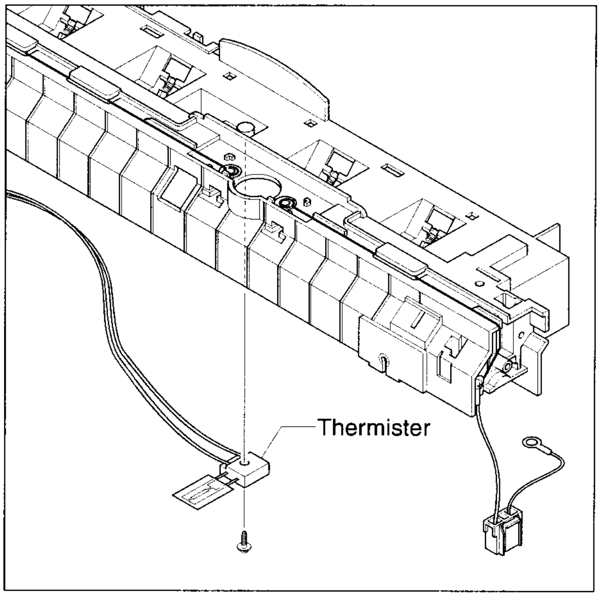
6. Remove the four screws securing the Fuser Cover and remove it, as shown below.


Claw
Fuser Cover
Claw

7. Unwrap the Thermister Harness, as shown below.


Thermister Harness

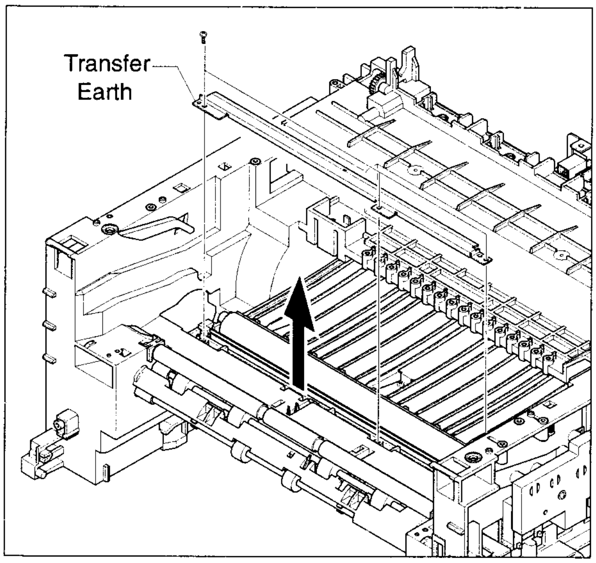
8. Remove the one screw securing the Thermister and remove it, as shown below.


Thermister

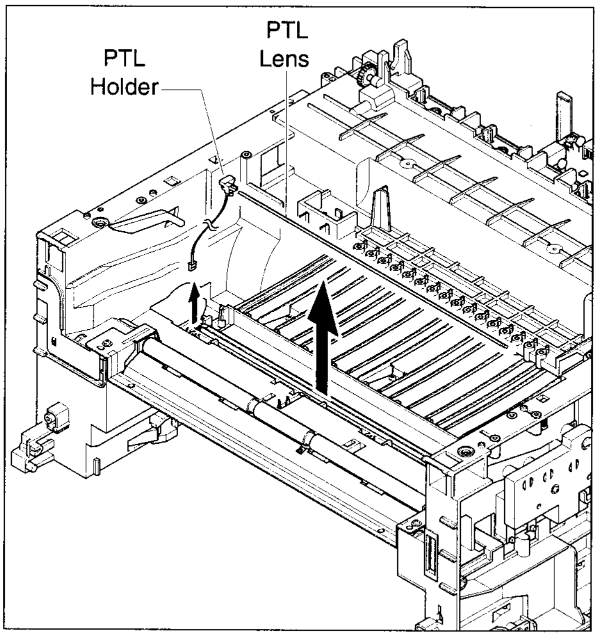
5.24 Transfer Ass'y

1. Before you remove the Transfer Ass'y, you should remove:
   - LSU (see section 5-18)

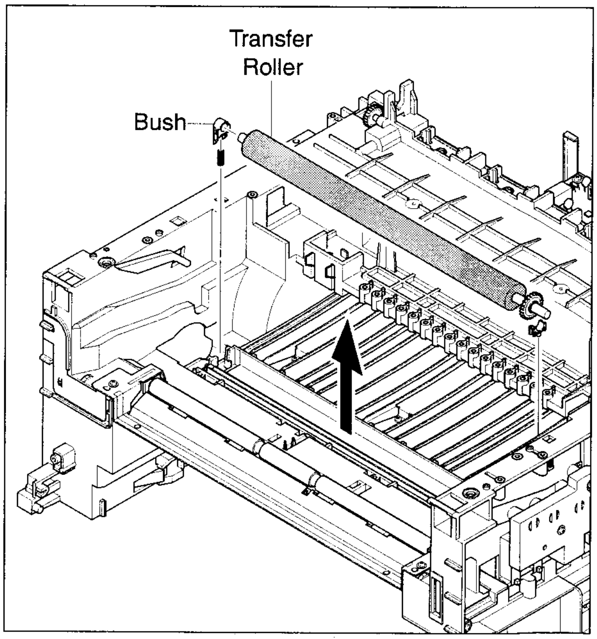
2. Remove the three screws securing the Transfer Earth and remove it.


Transfer Earth

3. Unplug the PTL Holder connector, then remove the PTL Holder and PTL Lens, as shown below.


PTL Holder
PTL Lens

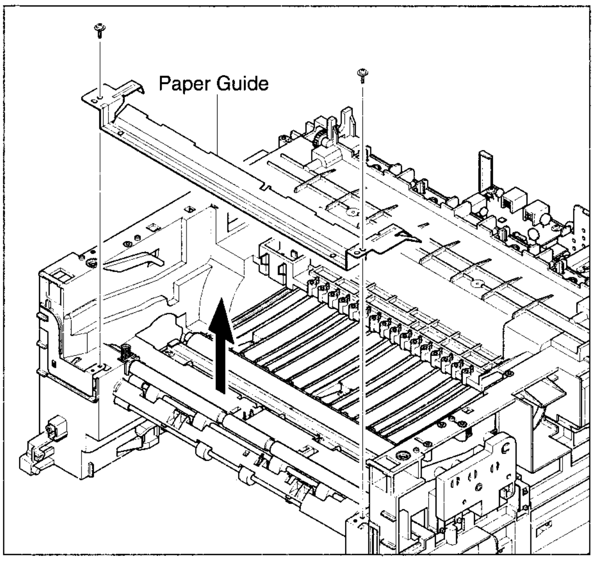
4. Release the frame latch at the RH side of the Transfer roller and lift the roller out. Release the latch on each bush and lift them out.


Transfer Roller
Bush

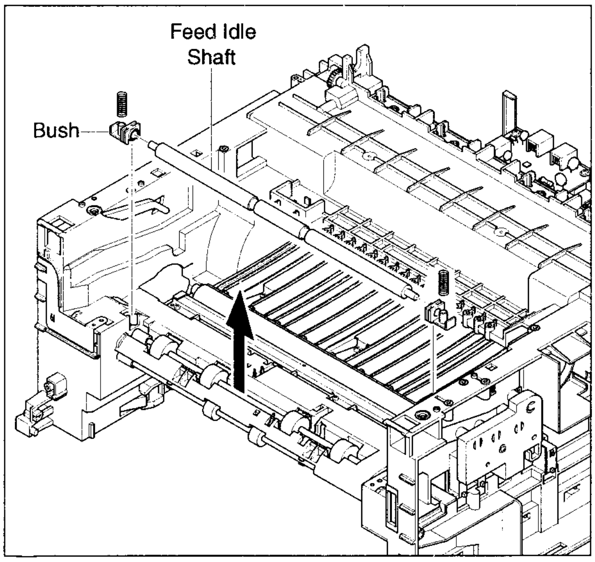
5.25 Feed Ass'y

1. Before you remove the Feed Ass'y, you should remove:
   - Scan Ass'y (see section 5-11)
   - Drive Ass'y (see section 5-15)
   - LSU (see section 5-18)

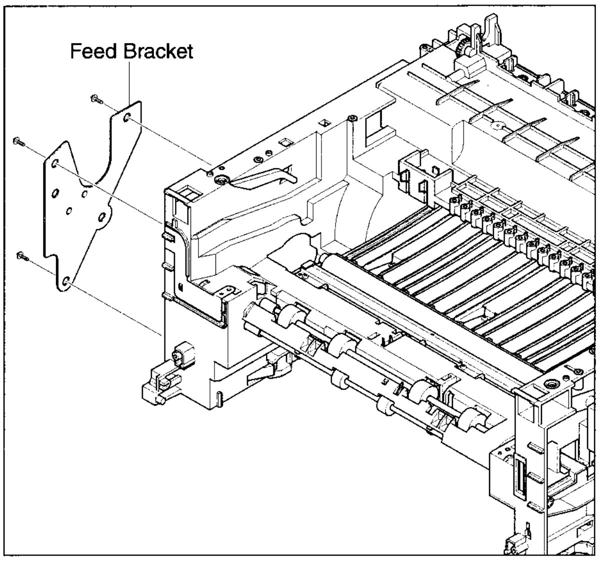
2. Remove the two screws securing the Paper Guide and remove it.


Paper Guide

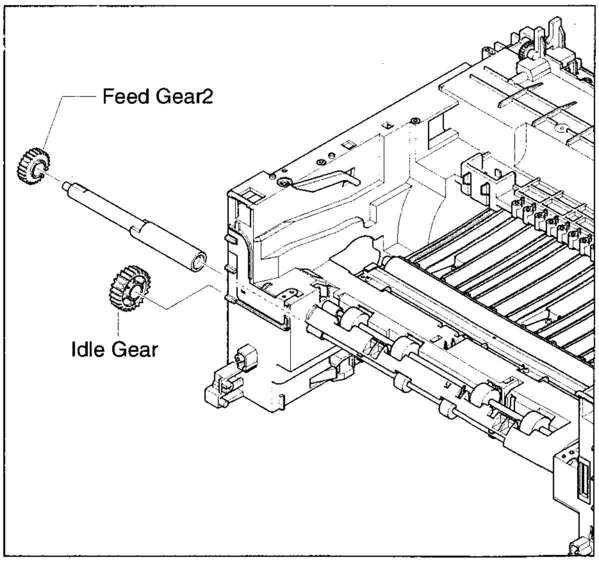
3. Pull up the Feed Idle Bush and Feed Idle Shaft, as shown below.


Feed Idle Shaft
Bush

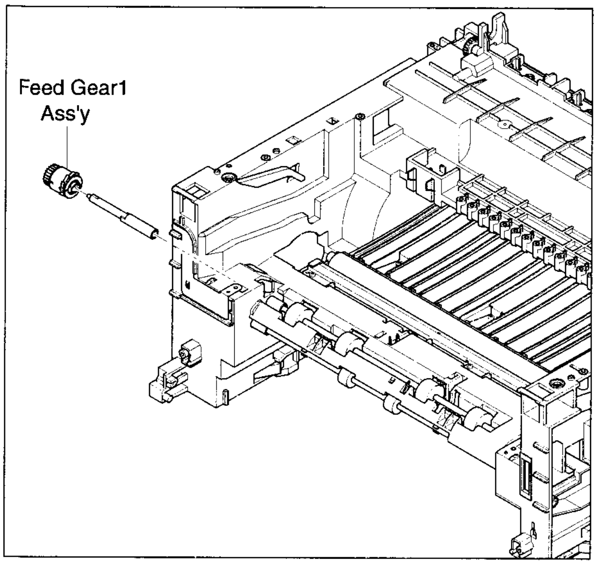
4. Remove the three screws securing the Feed Bracket and remove it.


Feed Bracket

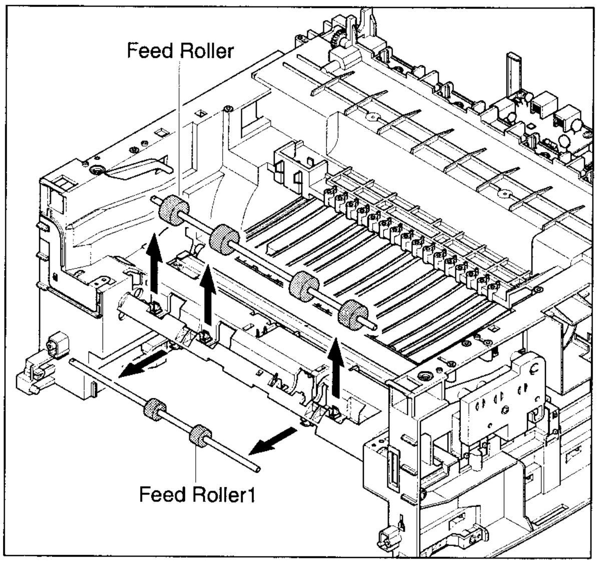
5. Remove the Idle Gear and Feed Gear2.


Feed Gear2
Idle Gear

6. Remove the Feed Gear1 Ass'y.


Feed Gear1
Ass'y

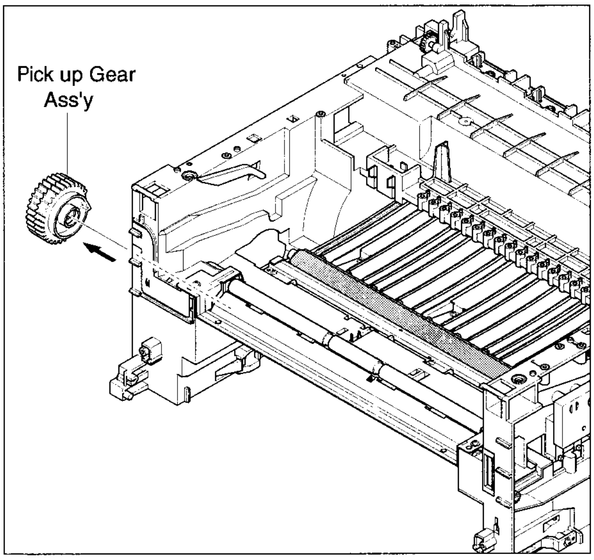
7. Pull up the Feed Roller and Feed Roller1.


Feed Roller
Feed Roller1

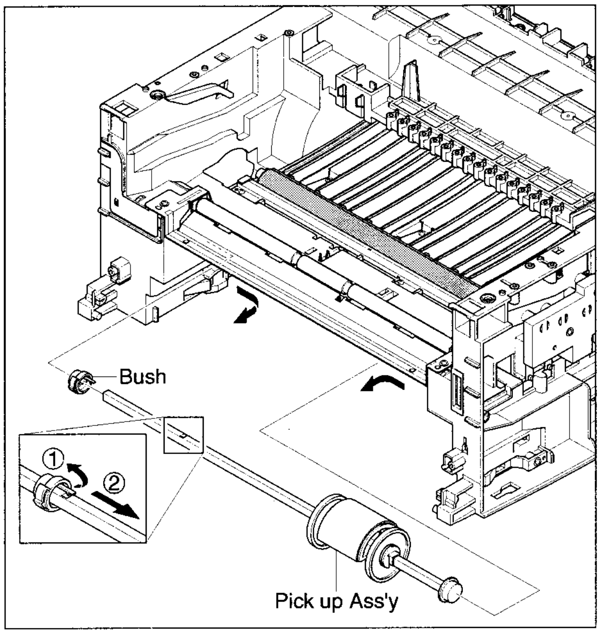
5.26 Pick up Ass'y

1. Before you remove the Pick up Ass'y, you should remove:
   - Scan Ass'y (see section 5-11)
   - Drive Ass'y (see section 5-15)
   - LSU (see section 5-18)
   - Engine Shield Ass,y (see section 5-19)

2. Remove the Pick up Gear Ass,y.


Pick up Gear Ass'y

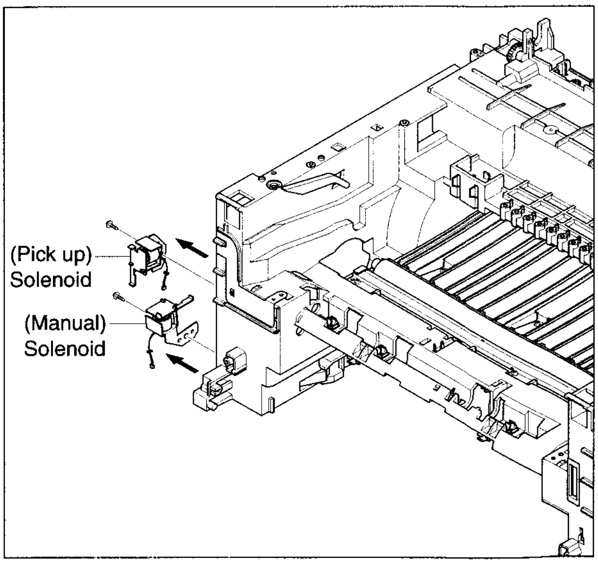
3. Take out the Pick up Ass'y, as shown below.


Bush
①
②
Pick up Ass'y

5.27 Solenoid

1. Before you remove the Solenoid, you should remove:
   - Scan Ass'y (see section 5-11)
   - Feed Ass'y (see section 5-25)
   - Pick up Ass'y (see section 5-26)

2. Remove the two screws securing the Manual Solenoid and Pick up Solenoid. Then remove Manual Solenoid and Pick up Solenoid.


(Pick up) Solenoid
(Manual) Solenoid

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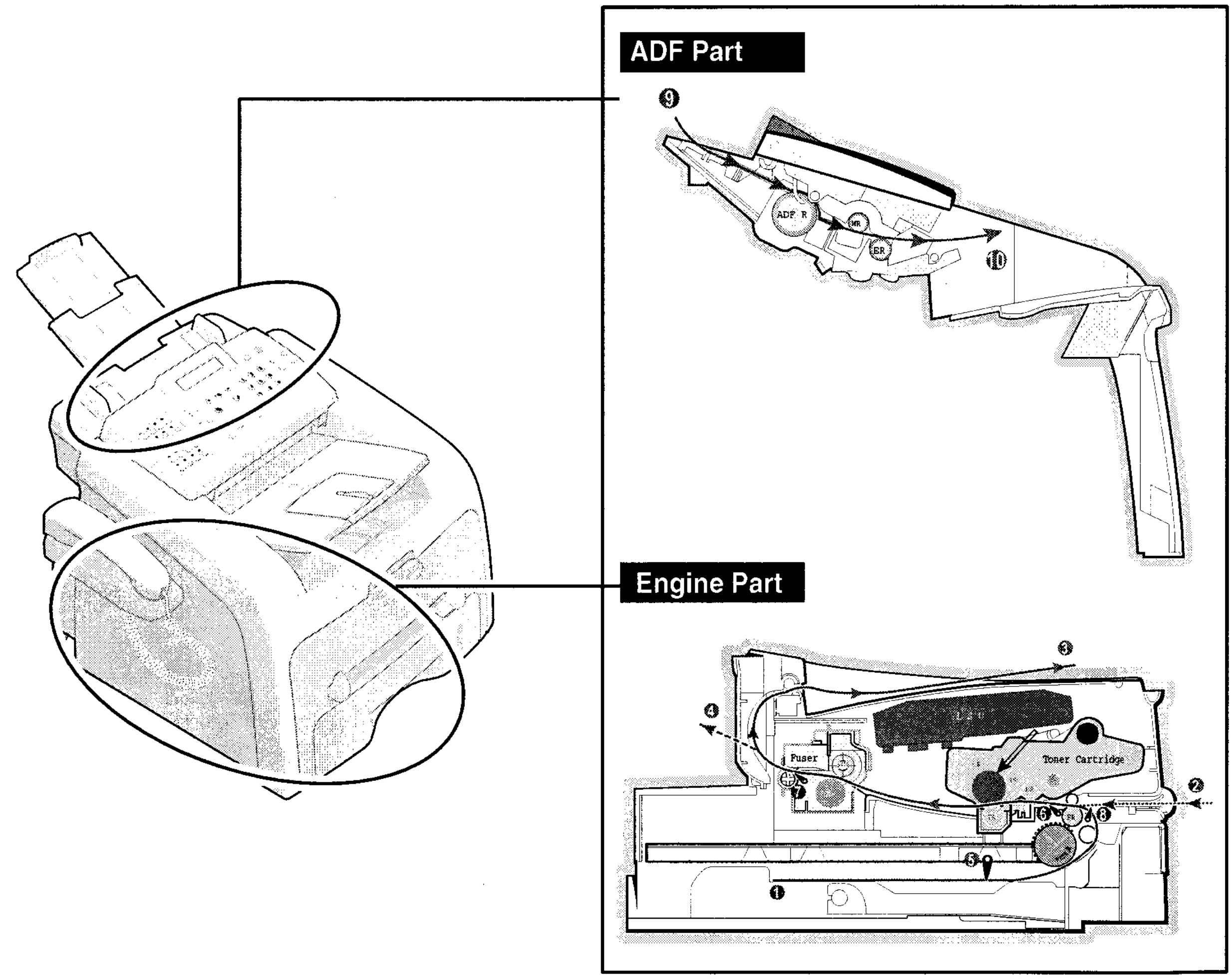
6. Alignment and Adjustments

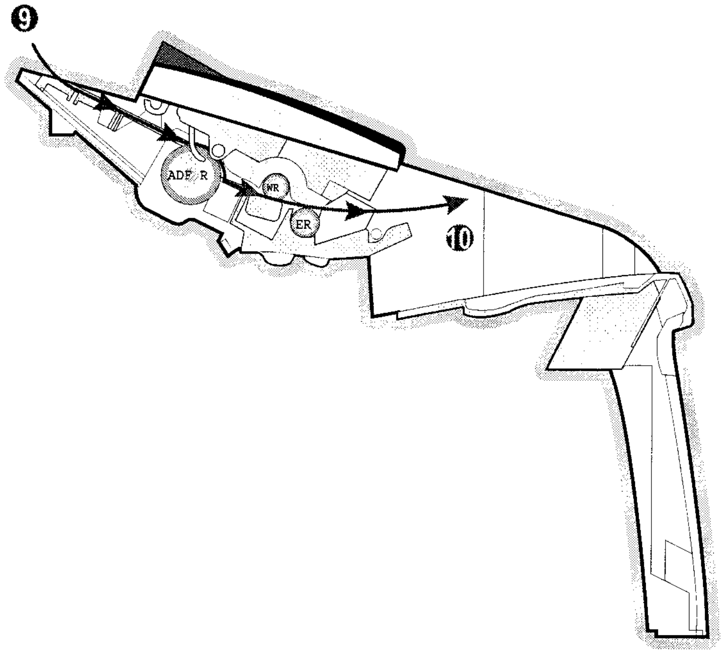
This chapter describes some of the main service procedures including:
Using the EDC mode; Clearing paper jam and test patterns.
Much of this chapter is also included in the user's guide.

6.1 Paper path


ADF Part
⑨
ADF R
MR
ER
⑩
Engine Part
③
④
Fuser
Toner Cartridge
②
⑦
⑥
⑧
⑤
①

6.1.1 Copy & Scan Document Path

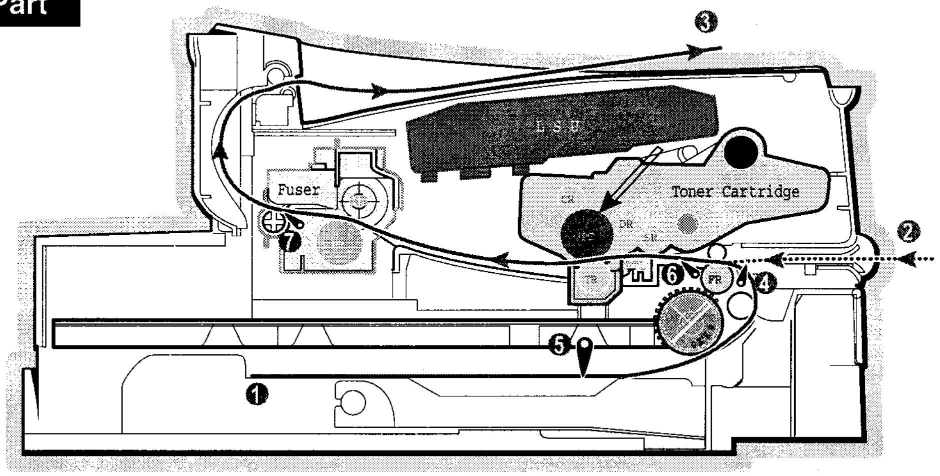
ADF Part


⑨
ADF R
WR
ER
⑩

6.1.2 Printer Paper Path

1) After receiving print job the printer feeds printing paper from the cassette or manual feeder.
2) The fed paper passes the paper feeding sensor. (Jam 0 occurs if the sensor is not operated within a certain time)
3) After passing the feed sensor the paper passes through the print process to the paper exit sensor. (Jam 1 occurs if the sensor is not operated by the paper's leading edge within a certain time)
4) After passing the exit sensor paper exits from the set. (Jam 2 occurs if the trailing edge of the paper does not pass the exit sensor within a certain time)

Engine Part



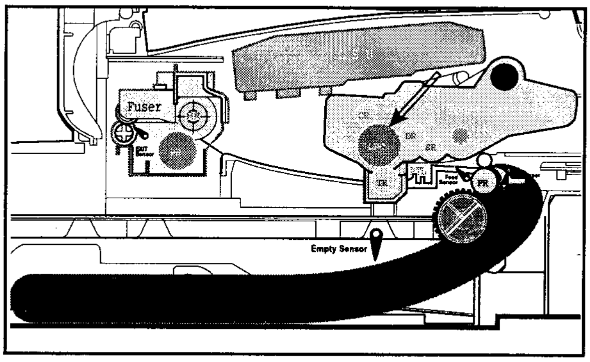
❶ **Paper Input (Cassette)**
❷ **Paper Input (Manual Feed)**
❸ **Paper Out (Face Down)**
❹ **Paper Empty Sensor (Manual)**
❺ **Paper Empty Sensor (Cassette)**
❻ **Paper Feed Sensor**
❼ **Paper Exit Sensor**

6.2 Clearing Paper Jams

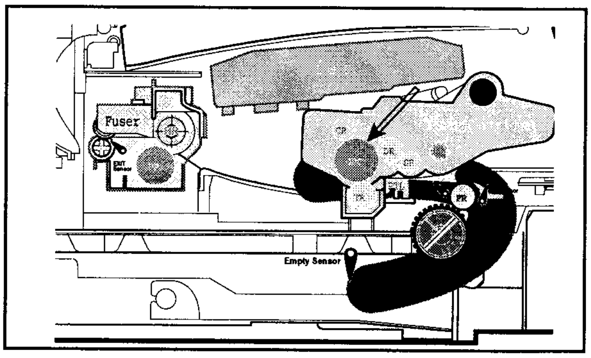
Occasionally paper can become jammed during a print job. Some of the causes include:

- The tray is loaded improperly or overfilled.
- The tray has been pulled out during a print job.
- The front cover has been opened during a print job.
- Paper was used that does not meet paper specifications.
- Paper that is outside of the supported size range was used.

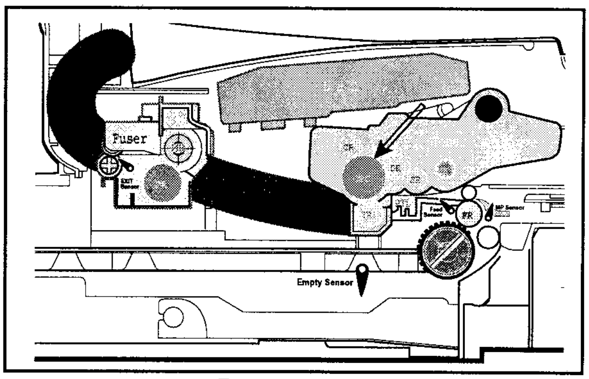
If a paper jam occurs the On Line/Error LED on the control panel lights red. Find and remove the jammed paper. If you don't see the paper, open the covers.
Do not use a tweezers, pincers or other metal tools when removing a jam.
This could damage the internal mechanism causing print quality problems or possibly electrical shock..


Fuser
EXIT Sensor
DR
SR
TR
Feed Sensor
FR
Empty Sensor

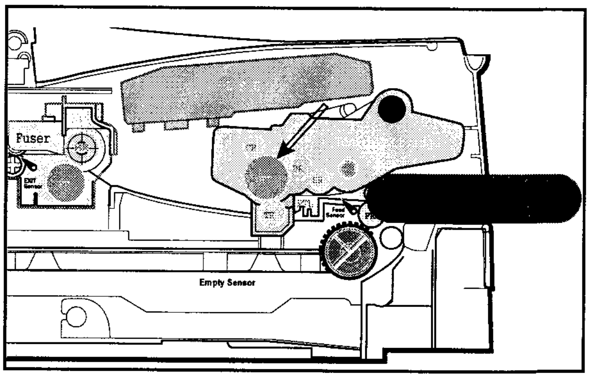
Paper Jam0


Fuser
EXIT Sensor
CR
DR
SR
TR
FR
Empty Sensor

Paper Jam1


Fuser
EXIT Sensor
CR
DR
SR
TR
Feed Sensor
FR
MP Sensor
Empty Sensor

Paper Jam2


Fuser
EXIT Sensor
CR
DR
SR
TR
Feed Sensor
Empty Sensor

Bypass Jam

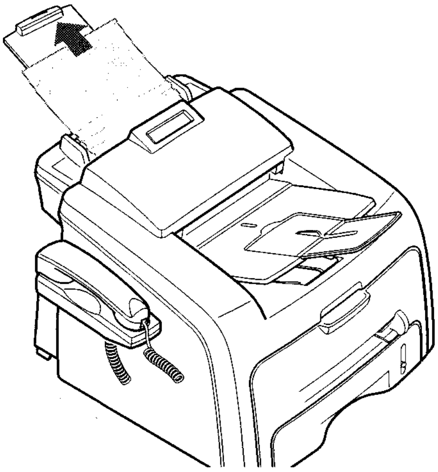
6.2.1 Clearing Document Jams

When a document jams while passing through the ADF (Automatic Document Feeder) "Document Jam" appears on the display.

6.2.1.1 Input Misfeed

1) Remove the remaining documents from the ADF.

2) Pull the jammed document gently out of the ADF.



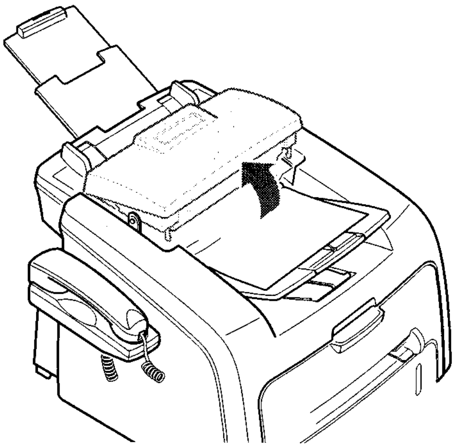
3) Load the documents back into the ADF.

NOTE :To prevent document jams do not use thick, thin or mixed documents.

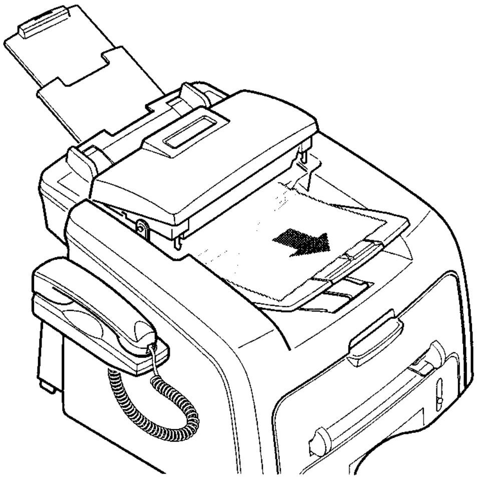
6.2.1.2 Exit Misfeed

1) Remove the remaining documents from the ADF.

2) Open the control panel by gripping its lower front edge and lifting gently.



3) Pull the document gently out of the ADF.



4) Close the control panel, then load the documents back into the ADF.

6.2.2 Clearing Paper Jams

When a paper jam occurs, "Paper Jam" appears on the display. Refer to the table below to locate and clear the paper jam.

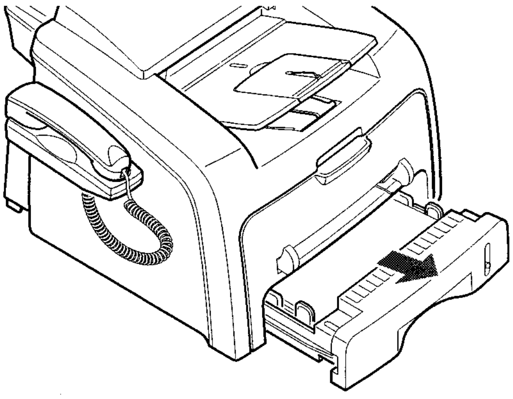
Message	Location of Jam	Go to
Paper Jam 0	In the paper tray.	page 6-3
Paper Jam 1	In the fuser area or around the toner cartridge.	page 6-3
Paper Jam 2	In the paper exit area	page 6-3
Bypass Jam	In the manual feeder	page 6-3

To avoid tearing the paper pull the jammed paper out gently and slowly. Follow the steps on the next pages to clear the jam.

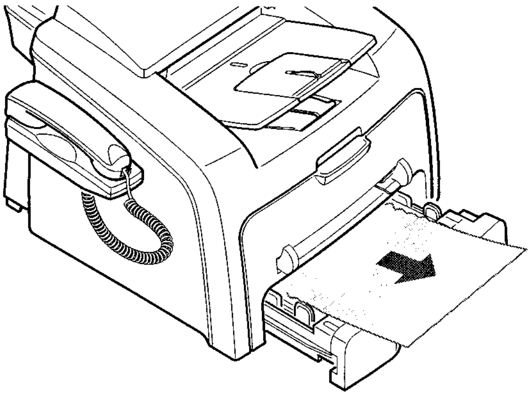
6.2.2.1 In the Paper Tray

1) Open and close the front cover. The jammed paper is automatically ejected from the machine. If the paper is not ejected continue to step 2.

2) Pull the paper tray open.



3) Remove the jammed paper by gently pulling it straight out.



If there is any resistance and the paper does not move when you pull or if you cannot see the paper in this area, skip to the fuser area around the toner cartridge. See page 6-10

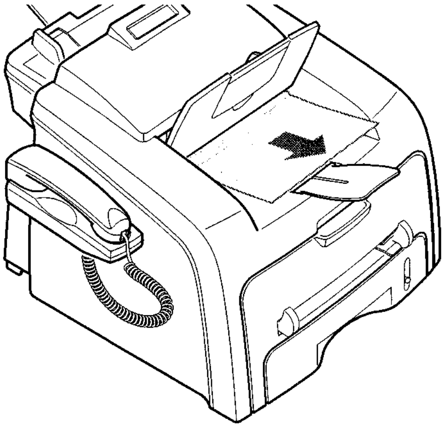
4) Insert the paper tray into the machine until it snaps into place.

5) Open and close the front cover to resume printing.

6.2.3 In the Paper Exit Area

1) Open and close the front cover. The jammed paper is automatically ejected from the machine. If the paper is not ejected continue to step 2.

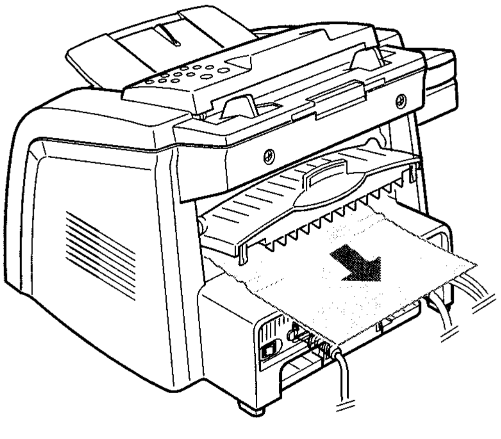
2) Gently pull the paper out of the front output tray. Skip to step 6.



If there is any resistance and the paper does not move when you pull or if you cannot see the paper in the front output tray continue to step 3.

3) Open the rear cover.

4) Remove the jammed paper by gently pulling it straight out.



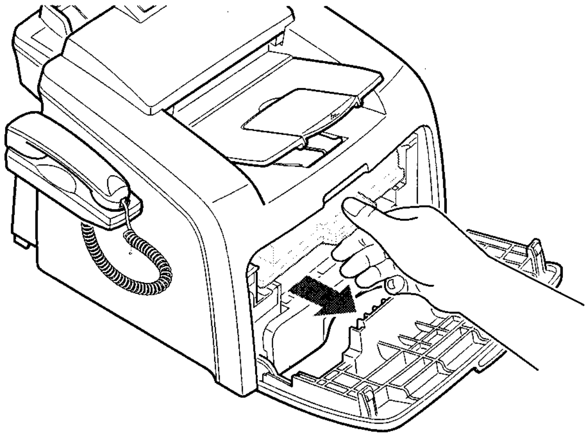
5) Close the rear cover.

6) Open and close the front cover to resume printing.

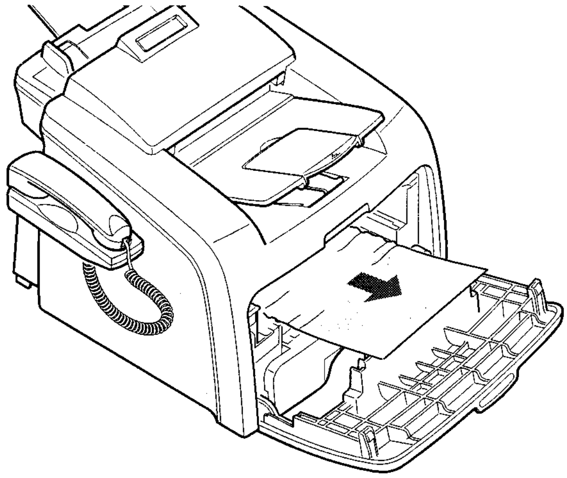
6.2.4 In the Fuser Area or Around the Toner Cartridge

NOTE :The fuser area is hot. Take care when removing paper from the machine.

1) Open the front cover and lightly push down on the cartridge then pull to take it out.



2) Remove the jammed paper by gently pulling it straight out.

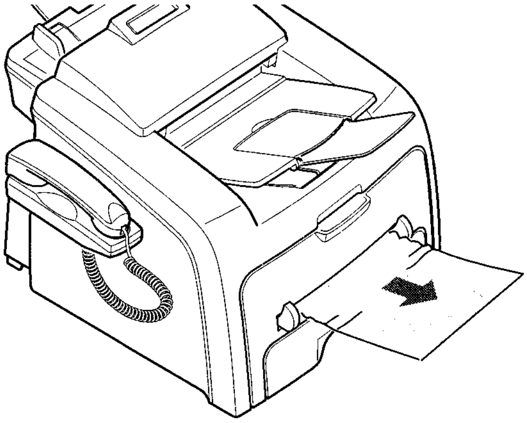


3) Replace the toner cartridge and close the front cover.
   Printing automatically resumes.

6.2.5 In the Bypass Tray

"Bypass Jam" appears on the display when you try to print using the manual feeder and the machine does not detect paper due to no paper or improper paper loading.

The error message may also occur when the paper is not properly fed into the machine through the manual feeder. In this case pull the paper out of the machine.



6.2.6 Tips for Avoiding Paper Jams

By selecting the correct paper types most paper jams can be avoided. When a paper jam occurs follow the steps outlined in page 6-10

- Follow the procedures on page 6-10 when you load paper. Ensure that the adjustable guides are positioned correctly.
- Do not overload the paper tray. Ensure that the paper is below the paper capacity mark on the inside wall of the paper tray.
- Do not remove the paper from the tray while your machine is printing.
- Flex, fan and straighten the paper before loading.
- Do not use creased, damp or highly curled paper.
- Do not mix paper types in the paper tray.
- Use only recommended print materials. See "Paper Specifications" in the user manual.
- Ensure that the print side of print materials is facing down in the paper tray and facing up in the Bypass tray.

6.3 User Mode(SF-565P)

The table below shows the map of User settings available in User Mode. These are fully described in the User Guide and are not included here.

1. Paper Setting
- Paper Type
- Paper Size

2. Copy Setup
- Default-Change
- Timeout

3. Fax Setup
- Ring to Answer
- Darkness
- Redial Term
- Redials
- MSG Confirm.
- Auto Report
- Auto Reduction
- Discard Size
- Receive Code

4. Fax Feature
- Delay Fax
- Add Page
- Cancel Job
- Delay Rx Poll

5. Advanced Fax
- Send Forward
- RCV Forward
- Toll Save
- Junk Fax Setup
- Secure Receive
- Prefix Dial No
- Stamp RCV Name
- ECM Mode

6. Reports
- Phone Book
- Send Report
- RCV Report
- System Data
- Scheduled Jobs
- MSG Confirm.
- Junk Fax List

7. Sound/Volume
- Speaker
- Ringer
- Key Sound
- Alarm sound

8. Machine Setup
- Machine ID
- Date &Time
- Clock Mode
- Language
- Power Save
- Ignore Toner
- USB Mode

9. Maintenance
- Clean Drum
- Notify toner
- Clear Memory
- Adjust Shading

6.4 Tech Mode

6.4.1 How to Enter Tech Mode

In service (tech) mode the technician can check the machine and perform various tests to help with failure diagnosis.
When in Tech mode the machine still performs all normal operations.

To enter the Tech mode

To enter the Tech mode press in sequence Menu → (#) → ① → ⑨ → ③ → ④ and the LCD briefly displays 'TECH', the machine has entered service (tech) mode.

6.4.2 Tech Mode settings map

Data Setup	Machine test	Report	New Cartridge
Send Level	Switch Test	Protocol	YES
Modem Speed	Modem Test	System Data	NO
Daial Mode	Dram Test		
Error Rate	Rom Test		
Notify Toner	Pattern Test		
Clear All Memory	Shading Test		
Clear Count			
Flash Upgrade			
Silence Time			

6.4.3 Data Setup

SEND LEVEL

You can set the level of the transmission signal. Typically, the Tx level should be under -12 dBm.

Caution : *The Send Fax Level is set to the best condition during manufacture. Never change settings arbitrarily.*

DIAL MODE

This function can choose the dialing method.
*Default : Dial (Dial/Pulse)

MODEM SPEED

You can set the maximum modem speed.
When the fax establishes communication with a remote set the value of the maximum modem speed is checked for both transmitter and receiver. The lowest value is used. It is best set at 33.6Kbps, the default setting.

ERROR RATE

When the error rate is about exceed the set value, the Baud rate automatically adjusts to 2400 bps.
This ensures that the error rate remains below the set value.
You can select the rate between 5% and 10%.

CLEAR ALL MEMORY

The function resets the system to factory default settings.
This function is used to reset the system to the initial value when the product is functioning abnormally. All the values are returned to the default values, and all the information which was set by the user will be erased.

< Method >

1. Select the [MEMORY CLEAR] in TECH MODE.
2. Push the ENTER button.
3. Select your country. (There are four country groups. Refer to the table below.)
4. Push the ENTER button then it will clear all memory.

NOTICE : *Always perform a memory clear after replacing the main board, otherwise the system may not operate properly.*

Country Group	USA/Canada	UK	Russia	South Africa
Country	USA/Canada Mexico Brazil	UK Germany France Italy Spain Austria Netherlands Belgium Portugal Sweden Norway Denmark Finland Switzerland Greece Ireland Turkey	Russia India Oman Poland Bangladesh Kuwait Morocco Algeria Pakistan UAE Bahrain Sri Lanka Saudi Arabia Chile Peru Argentina Hungary Romania Bulgaria Czech	South Africa

FLASH UPGRADE

There are 2 methods to update the Flash Rom, Local and Remote.

(1) Local Machine

• RCP (Remote Control Panel) mode

This method is for Parallel Port or USB Port. Connect the PC and activate the RCP (Remote Control Panel) to upgrade the Firmware.

< Method >

How to Update Firmware using RCP

1. Connect PC and Printer with a Parallel Cable or a USB Cable.
2. Run the RCP utility and select Firmware Update.
3. Search for the Firmware file to be used to update the set using the Browse Icon.
4. Click the Update icon. The firmware file is transmitted to the Printer automatically and the printer is initialized when the download completes.
5. Click the Refresh icon and check that the updated version numbers are displayed.

• DOS Command mode

This method is ONLY for Parallel Port. Connect the PC to the set using a Parallel Cable and enter the DOS Command to upgrade the firmware.

< Method >

1. First of all you need the following files : down.bat, down_com.bin, fprt.exe, and Rom File: (file name for upgrade). Ensure you save ALL of these files in the same folder.
2. At the DOS prompt enter the correct command (as shown below) and push the enter key.
   Then the upgrade will automatically take place..
3. There are two commands use the correct one depending on the condition of the set..
   * When the product is in the idle condition
     down "rom file"
   * When the product is in Ready condition
     (TECH MODE --> DATA SETUP --> FLASH UPGRADE --> LOCAL)
     fprt "rom file"
4. Do not turn off the power during the upgrade process.

(2) Remote FAX

It is possible to use a set that already has the latest firmware to upgrade a remote set remotely using the telephone system.

< Method >

1. On the set that has the latest firmware set it toi transmit the upgrade:-
   (TECH MODE •DATA SETUP•••• FLASH UPGRADE•••• REMOTE)
2. Enter the telephone number of the set that needs to be upgraded.
   (Several faxes can be upgrade at the same time. In this case, enter each fax number.)
3. When the enter button is pressed the set sends the firmware file by calling designated fax number.
   (Around 10~15 minutes are needed to send the file.)

< Caution >

1. The Sending and Receiving fax machines MUST be the same model.
2. The sending fax must be set up in ECM mode and the Receiving fax memory must be 100%.
   If not the function will not work.

6.4.4 Machine Test

SWITCH TEST

Use this feature to test all keys on the operation control panel. The result is displayed on the LCD window each time you press a key.

MODEM TEST

Use this feature to hear various transmission signals to the telephone line from the modem and to check the modem, amplifier and speaker. If no transmission signal sound is heard, it means the modem part of the main board, amplifier, speaker or speaker harness is faulty.

DRAM TEST

Use this feature to test the machine's DRAM. The result appears in the LCD display.
If all memory is working normally, the LCD shows << O K >>

ROM TEST

Use this feature to test the machine's ROM. The result and the software version appear in the LCD display.

- FLASH VER : 1.00 V
- ENGINE VER :1.00V

PATTERN TEST

Using this pattern printout you can check that the printer mechanism is functioning properly.
This function is for factory manufacturing use only.

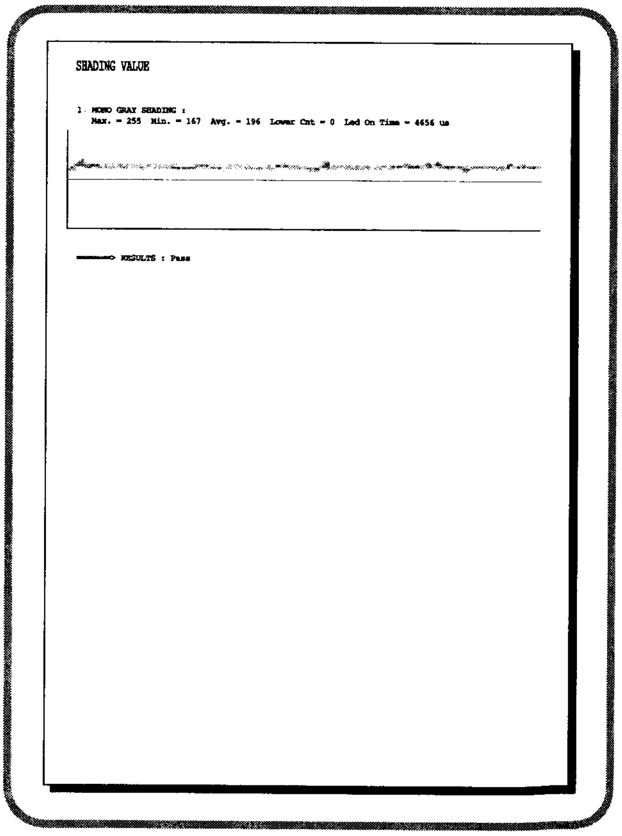
SHADING TEST

The function is used to set the optimum scan quality determined by the specific characteristics of the CIS (Contack Image Sensor). If copy image quality is poor perform this function to check the condition of the CIS unit.

< Method >

1. Select the [Shading Test] in TECH MODE(Manu, #, 1934).
2. Push the ENTER button and an image will be scanned.
3. After scanning the CIS SHADING PROFILE will be print out.
4. If the printed image is different to the sample image shown the CIS is defective.

NOTICE : *When you test the CIS, make sure that the cover is closed.*



```
SHADING VALUE

1. MONO GRAY SHADING :
   Max. = 255  Min. = 167  Avg. = 196  Lower Cnt = 0  Led On Time = 4656 us

──────> RESULTS : Pass
```

6.4.5 Report

PROTOCOL LIST

This list shows the sequence of the CCITT group 3 T.30 protocol during the most recent sending or receiving operation. Use this list to check for send and receive errors. If a communication error occurs while the machine is in TECH mode, the protocol list will print automatically.

SYSTEM DATA

This list provides a list of the user system data settings and tech mode settings.

6.5 Engine Test Mode

The Engine Test Mode supplies useful functions to check the condition of the print engine. It tests the condition of each device and displays the result of the test on the LCD. It is divided into 5 functions (0~4), and these are shown below.

6.5.1 To enter the Engine Test Mode

To enter the Engine Test mode

Press Menu → # → ① → ⑨ → ③ → ① in sequence, and the LCD briefly displays **'Engine Test',** the machine has entered Engine Test Mode.
Press "0", "1", "2", "3" or "4" to select the Test No. (see list below – left hand column)

6.5.2 Diagnostic

NO.	Sub No.	Engine test	Remark
0	1	Motor Test	1 : On, 2 : Off – next test selected
	2	Pick Up Test	1 : On, 2 : Off – next test selected
	3	Fan Test	1 : On, 2 : Off – next test selected
	4	Manual Clt Test	1 : On, 2 : Off – next test selected
	5	PTL Test	1 : On, 2 : Off – next test selected
1	1	LSU Motor Test	1 : On, 2 : Off – next test selected
	2	LSU Hsync Test	1 : On, 2 : Off – next test selected
	3	LD Test	1 : On, 2 : Off – next test selected
2	1	Feed Sensor Test	1. Check : read the sensor
			2. Next : Next Sensor test
	2	Exit Sensor Test	1. Check : read the sensor
			2. Next : Next Sensor test
	3	Cover Sensor Test	1. Check : read the sensor
			2. Next : Next Sensor test
	4	Empty Sensor Test	1. Check : read the sensor
			2. Next : Next Sensor test
	5	Manual Sensor Text	1. Check : read the sensor
			2. Next : Next Sensor test
3	1	Therm ADC 180	1 : On, 2 : Off (maintain the fusing temp. 80C)
	2	Therm ADC 140	1 : On, 2 : Off (maintain the fusing temp. 135C)
	3	Therm ADC 120	1 : On, 2 : Off (maintain the fusing temp. 160C)
	4	Therm ADC 100	1 : On, 2 : Off (maintain the fusing temp. 191C)
4	1	MHV Test	1 : On, 2 : Off (-1550V ± 50V)
	2	Dev Bias Test	1 : On, 2 : Off (-430V ± 20V)
	3	THV EN/NEG Test	1 : On, 2 : Off (-1000V +300V/-150V)
	4	THV ON (1300V)	1 : On, 2 : Off (+1300V ± 20V)
	5	THV ADC 1300V	1 : On, 2 : Off (ADC Value : 101 ± 5)
	6	THV ADC 600V~3500V	1 : On, 2 : Off (Compare each ADC Value)

6.6 Identify Sale Date

This function confirms the date that consumer used the product for the first time.
When the consumer first operate the machine, it will start the scan and page counters.
The time the machine was first used is remembered.

These settings are remembered after memory reset (Clear All Memory).

< Method >

Press MENU, #, 1, 9, 3, # in sequence. Firmware version is displayed on LCD.
Press 1(in the number keypad) : The LCD display shows "Updated date"
Press 2(in the number keypad) : The LCD display shows "Product first use date"

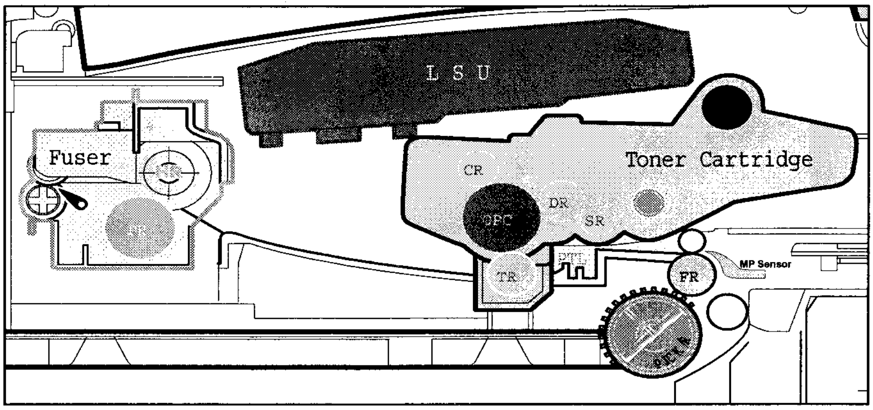
6.7 Consumables and Replacement Parts

The life cycle outlined below is a general guideline for maintenance purposes and is for reference only. Environmental conditions (temperature, humidity, dust etc.) and actual use can cause these figures to vary.

COMPONENT	REPLACEMENT CYCLE
ADF Rubber	20,000 Pages
ADF Roller	60,000 Pages
Pick-up Roller	60,000 Pages
Friction Pad	60,000 Pages
Transfer Roller	60,000 Pages
Fuser	60,000 Pages
Toner Cartridge	3,000 Pages (A4 IDC 5% Pattern)

6.8 Abnormal Image Printing and Defective Roller

If a mark or other printing defect occurs at regular intervals down the page it may be caused by a damaged or contaminated roller. Measure the repetition interval and refer to the table below to identify the roller concerned.



- ❶ **OPC Drum**
- ❷ **Charge Roller**
- ❸ **Supply Roller**
- ❹ **Developing Roller**
- ❺ **Transfer Roller**
- ❻ **Heat Roller**
- ❼ **Pressure Roller**

No	Roller	Abnormal image period	Kind of abnormal image
1	OPC Drum	75.5mm	White spot, Block spot
2	Charge Roller	37.7mm	Black spot
3	Supply Roller	37.0mm	Horizontal density band
4	Develop Roller	35.2mm	Horizontal density band
5	Transfer Roller	45.3mm	Black side contamination/transfer fault
6	Heat Roller	66.3mm	Black spot and fuser ghost
7	Pressure Roller	75.5mm	Black side contamination

6.9 Error Messages

The front panel displays the printer's status or error messages. Refer to the list below for an explanation of these messages and how to clear problems. The messages and their meanings are listed in alphabetical order, with numbered messages following.

[Bypass Jam]
Meaning: The machine has detected a paper feed problem from the BYPASS Tray.
Solution: Open the side Cover and clear the jam.

Cancel ?
1:Yes 2:No
Meaning: While storing the document in memory the memory has become full.
Solution: To cancel the fax job, press the '1' button to accept "Yes." If you want to send the pages that were stored press the '2' button to accept "No." This will send ONLY the pages stored. The remaining pages should be sent later when more memory becomes available.

[Comm. Error]
Meaning: A problem with the fax communications has occurred.
Solution: Try again.

CRU Fuse Error
Meaning: The machine has a problem with recognizing the new toner cartridge.
Solution: Check the toner cartridge probrem.

Document Jam
Meaning: Loaded document has jammed in the ADF.
Solution: Clear the document Jam.

[Door Open]
Meaning: The front cover is not securely latched.
Solution: Close the cover until it clicks in place.

Group Not Available
Meaning: You have tried to select a group location where only a single location number can be used, such as when adding locations for a multi-dial operation.
Solution: Just use a one-touch or speed dial number or dial a number manually using the number keypad.

[Incompatible]
Meaning: The remote machine does not have the requested feature, such as a delayed transmission.
Solution: Reconfirm the remote machine's features.

[Jam 1] or [No Cartridge]
Meaning: Paper has jammed inside the unit, or the toner cartridge is not installed.
Solution: Clear the jam. Install the toner cartridge.

Line Busy
Meaning: The remote person did not answer or the line is already engaged.
Solution: Try again after a few minutes.

[Line Error]
Meaning: Your machine cannot connect with the remote machine or has lost contact because of a problem with the phone line.
Solution: Try again. If the problem persists, wait an hour or so for the line to clear and try again.Or, turn the ECM on.

Load Document
Meaning: You have attempted to set up a copy or fax operation with no document loaded.
Solution: Load a document and try again.

[Low Heat Error]
Meaning: There is a problem in the fuser unit.
Solution: Check thermostat, thermister contact point & Heating Lamp.

Open Heat Error
Meaning: Thermister is not connected to the main board or contact point is poor at power on.
Solution: Check thermostat, thermister contact point & Heating Lamp.

[Over Heat]
Meaning: The printer has overheated.
Solution: Your unit will automatically return to the standby mode when it cools down to normal operating temperature. If failure persists, check the ELA HOU-FUSER.

[LSU Error]
Meaning: A problem has occurred in the LSU (Laser Scanning Unit).
Solution: Use TECH mode to test LSU. Replace the LSU

Memory Full
Meaning: The memory has become full.
Solution: Either delete unnecessary documents, or retransmit after more memory becomes available, or split the transmission into more than one operation.

[No Answer]
Meaning: The remote machine did not answer after all the redial attempts.
Solution: Try again. Make sure the remote machine is OK.

NO. Not Assigned
Meaning: The speed dial location you tried to use has no number assigned to it.
Solution: Dial the number manually with the keypad, or assign the number.

[No Paper]Add Paper
Meaning: The paper cassette is empty. The printer system stops.
Solution: Load new paper in the paper tray.

Operation NotAssigned
Meaning: You are doing in the Add/ Cancel operation, but there is no jobs waiting.
Solution: Check the display to see if there is any scheduled job. The display should indicate them in Standby mode, for example, Delay Fax.

[Paper Jam 0]Open/Close Door
Meaning: Paper has jammed in paper feeding area. Paper is jammed in pick-up unit
Solution: Press STOP and clear the jam.

[Paper Jam 1]Open/Close Door
Meaning: Paper has jammed inside the unit. Paper has jammed in paper exit unit.
Solution: Clear the jam.

[Paper Jam 2]Check Inside
Meaning: Paper has jammed inside the unit. Paper has jammed in fuser area.
Solution: Clear the jam.

Power Failure
Meaning: Power has turned off then on and the machine's memory has not been saved.
Solution: You need to start again the job which you were trying to do before the power failure.

Retry Redial?
Meaning: The machine is waiting for the programmed interval to automatically redial.
Solution: You can press START to immediately redial, or STOP to cancel the redial operation.

[Stop Pressed]
Meaning: The Stop/Clear button is pressed during a copy or fax operation.
Solution: Try again.

[Toner Empty]
Meaning: The toner cartridge has run out. The machine stops printing.
Solution: Replace with a new toner cartridge.

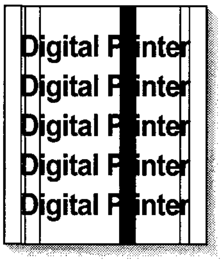
[Toner Low]
Meaning: The toner cartridge is almost empty.
Solution: Take out the toner cartridge and gently shake it. By doing this, you can temporarily reestablish printing operations."

7. Troubleshooting

7.1 Printing Problems – Causes and Solutions

7.1.1 Vertical Black Lines and Bands

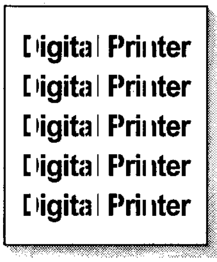
• Description
1. Straight thin black vertical lines occur in the printing.
2. Dark black vertical bands occur in the printing.


Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Damaged developer roller, deformed Doctor-blade or cleaning-blade in the Toner cartridge.	1. Replace the toner cartridge and test again.
2. Scratched surface of the charge roller in the toner cartridge.	2. Replace the toner cartridge and test again.
3. 3. Depression or deformation of the surface of the transfer roller.	3. Replace the transfer roller and test again.

7.1.2 Vertical White Line

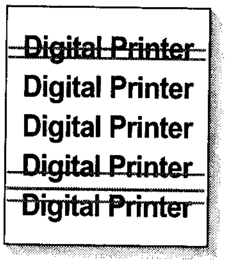
• Description White vertical voids in the image.


Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. 1. Contamination of the window or internal lenses of LSU mirror.	1. Clean the LSU window with recommended cleaner (IPA) Clean the window with a clean cotton swab. If dirt is inside the LSU – replace LSU.
2. Foreign object inside the toner cartridge or low toner.	2. Replace the toner cartridge.
3. Foreign object, contamination or burr on the edge of the toner cartridge window.	3. Clean the exposure window.
4. If the fuser is defective, voids occur periodically at the top of a black image.	4. Open the front cover and check the ribs that correspond to the position of the voids. Remove if found.
5. Contamination of the OPC drum.	5. If the problems are not solved, replace the toner cartridge.
6. Depression or deformation of the surface of the transfer roller	6. Replace the transfer roller.

7.1.3 Horizontal Black Bands

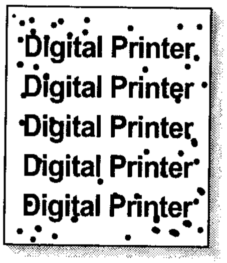
• Description 1. Dark or blurry horizontal stripes occur in the printing periodically.
(These may occur at regular intervals down the page.)



Check and Cause	Solution
1. Bad contacts on the toner cartridge high voltage terminals.	1. Clean all HV terminals on the cartridge and on the set frame. Ensure all toner or paper dust particles are removed.
2. The rollers in the toner cartridge may be contaminated. Charge roller = 37.7 mm Supply roller = 37 mm Develop roller = 35.3 mm Transfer roller = 45.3 mm	2. Clean the right Gear that has relatively small tooth gap on the OPC.
	3. If the problem persists replace the toner cartridge.

7.1.4 Black/White Spot

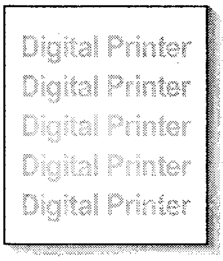
• Description 1. Dark or blurry black spots occur periodically in the printing.
2. White spots occur periodically in the printing.



Check and Cause	Solution
1. If dark or blurry black spots occur periodically, the rollers in the Developer may be contaminated with foreign matte or paper particles. (Charge roller : 37.7 mm interval OPC drum : 75.5 mm interval)	1. Print several OPC cleaning Mode Prints and then run the Self-test 2 or 3 times.
2. If faded areas or voids occur in a black image at intervals of 75.5 mm, or black spots occur elsewhere, the OPC drum surface is damaged.	2. 75.5 mm repetition: Examine the surface of the OPC drum and carefully clean with a soft, lint free cloth. If unsuccessful replace the cartridge. 37.7mm repetition: Replace the toner cartridge
3. If a black image is partially broken, the transfer voltage is abnormal or the transfer roller's life has expired.	3. The transfer roller guarantees 60,000 sheets printing. If the roller's life is expired, replace it. **Note.** Cleaning the inside of the set to remove excess toner particles or paper dust will reduce the occurrence of this problem..

7.1.5 Light Image

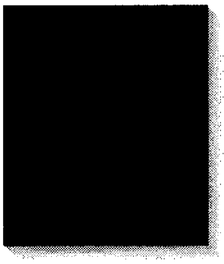
• Description The printed image is light, with no ghost.



Check and Cause	Solution
1. Toner Save mode enabled	1. Ensure the Toner Save mode is off. Check set and driver settings.
2. Develop roller is contaminated or the toner cartridge is almost empty.	2. Replace the toner cartridge and try to print out again.
3. Ambient temperature is below than 10°C.	3. Wait 30 minutes after printer is powered on before you start printing.
4. Bad contact caused by dirty terminals on the toner cartridge or set.	4. Clean the cartridge and set contacts. Generally clean dirt from inside the set.
5. Abnormal output from the HVPS. (Run EDC mode – see sections 6.1.2 and 6.1.3)	5. Replace the HVPS if the problems are not solved by the above four instructions.

7.1.6 Dark Image or a Black

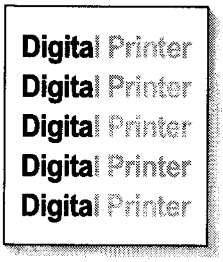
• Description The printed image is dark.



Check and Cause	Solution
1. No charge voltage in the engine board.	1. Check the state of the connector which connects the engine board and HVPS.
2. Charge voltage fault due to bad contact between toner cartridge and set contacts.	2. Clean the high voltage charge terminals. **Note** if 1 and 2 do not resolve the problem and the problem persists replace the HVPS.
3. VD0 signal of the Main PBA is Low state.	3. Replace the LSU Unit or Main PBA.

7.1.7 Uneven Density

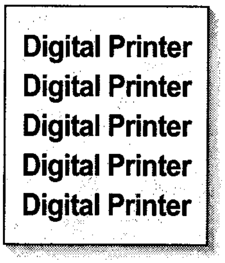
• Description Print density is uneven between left and right.



Check and Cause	Solution
1. The pressure force on the left and right springs of the transfer roller is not even, the springs are damaged, the transfer roller is improperly installed, or the transfer roller bushing or holders are damaged.	1. Replace both the left and right bush and spring assemblies.
2. The life of the Toner cartridge has expired.	2. Replace the toner cartridge and try to print out
3. The toner level is not even on the toner cartridge roller due to the damaged blade or low toner.	3. Gently shake the toner cartridge and try printing again. If the problem persists replace the toner cartridge.

7.1.8 Background

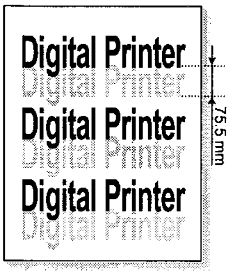
• Description Light dark background appears in whole area of the printing.



Check and Cause	Solution
1. Printing large quantities of low coverage (2%) pages or the printer has not been used for a long time.	1. The toner cartridge is basically designed to print 3,000 sheets with 5% image. If it prints more than 3,600 sheets with 2% coverage, a background can occur.
2. Is a recycled toner cartridge be used?	2. The A/S is not guaranteed if using a recycled toner cartridge. **Note** try shaking the toner cartridge gently from side to side. If the problem persists replace the toner cartridge.
3. Has the life span of the toner cartridge ended?	3. Replace the toner cartridge when its life is expired.
4. Is the movement(Up and Down) of the transfer roller smooth?	4. Clean the transfer roller bushes.
5. Is the HVPS normal?	5. Clean the high voltage charge terminals. If this does not resolve the problem replace the HVPS.

7.1.9 Ghost (1)

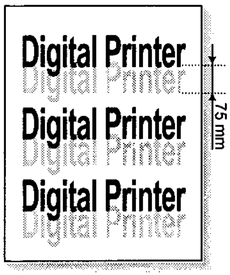
• Description Ghost occurs at 75.5 mm intervals of the OPC drum in the whole printing.


Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
75.5 mm

Check and Cause	Solution
1. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the electrode of the Toner cartridge.	1 and 2. Clean all HV contacts, If problem persists replace the HVPS. If problem still persists replace the Main PBA
2. Bad contacts caused by contamination from toner particles between high voltage terminal in the main body and the one in the HVPS board.	
3. The life of toner cartridge is expired.	3. Replace the toner cartridge and try to print out.
4. Transfer roller life (60,000 sheets) has expired.	4. Check the transfer roller lifetime and replace it.
5. Low ambient temperature (below 10°C).	5. Wait about 30 minutes after power on before using printer.
6. Damaged cleaning blade in the toner cartridge.	6. Replace the toner cartridge and try to print out again

7.1.10 Ghost (2)

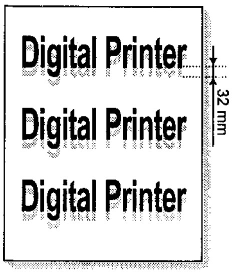
• Description Ghost occurs at 75 mm intervals of the OPC drum in the whole printing.
(When printing on card stock or transparencies using manual feeder)


Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer
75 mm

Check and Cause	Solution
When printing on card stock, thicker than normal paper or transparencies, such as OHP, a higher transfer voltage is required.	Ensure that the correct paper type is selected in the printer driver or application software. Remember to set back to normal paper after use.

7.1.11 Ghost (3)

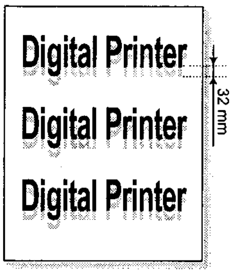
• Description Ghost occurs at 66.3 or 75.5 mm intervals.


Digital Printer
Digital Printer
Digital Printer
32 mm

Check and Cause	Solution
Fuser contamination.	1. Disassemble the fuser and remove any contamination on the rollers. Clean any contamination from between the Thermistor and the Heat roller. (Caution: Take care not to deform the rollers.)

7.3.12 Ghost (4)

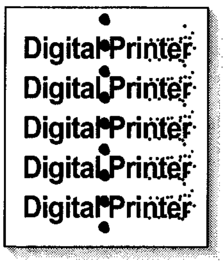
• Description A White ghost occurs in a black image printing at 32 mm intervals.


Digital Printer
Digital Printer
Digital Printer
32 mm

Check and Cause	Solution
1. The life of the developer may be expired.	1. Problem in the toner cartridge, replace the toner cartridge and try to print out again.
2. Abnormal output from the HVPS. (Run EDC mode – see sections 6.1.2 and 6.1.3)	2. Check the HVPS supply voltage. Clean all HV terminals on the cartridge and on the set. Replace the HVPS if the problem persists.

7.1.13 Stains on the Face of the Page

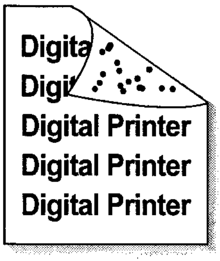
• Description The background on the face of the printed page is stained.


Digital Printer
Digital Printer
Digital Printer
Digital Printer
Digital Printer

Check and Cause	Solution
1. Toner leakage due to improperly sealed toner cartridge.	1. Replace the toner cartridge.
2. If the transfer roller is contaminated, stains on the face of page will occur.	2. If the transfer roller is contaminated, run PC Cleaning Mode Print 2 or 3 times and then perform Self-Test 2 or 3 times to remove contamination.

7.1.14 Stains on Back of Page

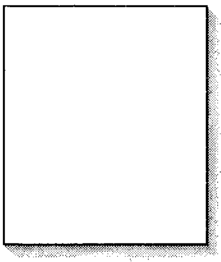
• Description The back of the page is stained at 45.3 or 75.5 mm intervals.



Check and Cause	Solution
1. 45.3mm : Transfer roller is contaminated.	1. Perform the OPC Cleaning Mode Print 2 or 3 times. Run Self-Test to remove the contamination from the transfer roller. **Note.** Replace the transfer roller if ⚠ contaminated severely.
2. 75.5mm : Pressure roller is contaminated.	2. Disassemble the fuser and clean the H/R(Heat Roller) and P/R(Pressure roller). Check and clean the area between the H/R and the Thermistor. (Caution: Take care not to deform the rollers.)

7.1.15 Blank Page Print out (1)

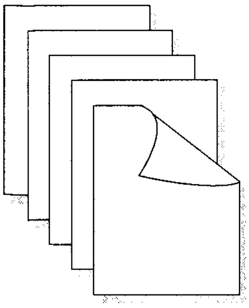
• Description Blank page is printed.



Check and Cause	Solution
Bad ground contacts in OPC and/or toner cartridge.	1. Check if the Ground-OPC or the OPC Ground Zener diode are defective or open circuit. (set inside left side). 2. Remove contamination of the terminals on the toner cartridge and the unit.

7.1.16 Blank Page Print out (2)

• Description
1. Blank page is printed.
2. One or several blank pages are printed.
3. When the printer turns on, several blank pages print.



Check and Cause	Solution
1. Abnormal solenoid.	1. Perform the engine self test using TECH Mode to check if the Solenoid is normal. If the problem persists replace the main PBA

7.2 Fax & Phone Problems

7.2.1 No Dial Tone

• Description There is no dial tone when the On-Hook dial button is pressed.

Check and Cause	Solution
1. Check that the telephone line cord supplied with the set is connected to TEL LINE correctly.	1. If the telephone cord is OK but there is no dial tone, try plugging a normal telephone into the wall socket. I this is OK then replace the LIU B'd.
2. Listen for a CLICK sound when the OHD key is pressed.	2. If you cannot hear the OHD CLICK sound, the OPE Ass'y may be defective. Replace the OPE Ass'y.
3. Check the connection of the HARNESS between the LIU and the Main B'd.	3. Check the Speaker connection and the harness between the LIU and the Main PBA, replace as necessary.
4. Check that the SPEAKER is connected correctly.	4. Use Tech mode / Modem Test to check that the speaker and amplifier are working. Replace the Main B'd.

7.2.2 Defective MF DIAL

• Description The MF DIAL is not functioning.

Check and Cause	Solution
1. Check that the telephone line cord supplied with the set is connected to TEL LINE correctly.	1. If the telephone cord is OK but there is no dial tone, try plugging a normal telephone into the wall socket. I this is OK then replace the LIU B'd.
2. Listen for a CLICK sound when the keKEY is pressed.	2. If you cannot hear the OHD CLICK sound, the OPE Ass'y may be defective. Replace the OPE Ass'y.
3. Check the connection of the HARNESS between the LIU and the Main B'd.	3. Check the Speaker connection and the harness between the LIU and the Main PBA, replace as necessary.
4. Check that the SPEAKER is connected correctly.	4. Use Tech mode / Modem Test to check that the speaker and amplifier are working. Replace the LIU and Main B'd in sequence **Notes:** Product supports MF DIAL type only.

7.2.3 Defective FAX FORWARD/RECEIVE

• Description FAX FORWARD/RECEIVE is not functioning.

Check and Cause	Solution
1. Check that you can hear a dial tone by pressing OHD.	1. If MODEM testing is normal and there is no dial tone, then try replacing the LIU B'd.
2. Check that you can hear a RECEIVE tone when MODEM testing in TECH Mode.	2. If testing the MODEM shows a fault replace the Main B'd.

7.2.4 Defective FAX FORWARD

• Description RECEIVE is functioning, but FORWARD is not functioning or received data is corrupt.

Check and Cause	Solution
1. Check if there is a NOISE line by pressing on-hook dial and listening.	1. If you can hear a noisy line when using on-hook dial, replace or repair the telephone line
2. Check that the destination fax machine can receive forwarded faxes by using a different sending fax machine (preferably from the same wall socket).	2. Replace LIU.
3. Check the cable between the set and the wall socket for damage.	3. Replace the line cord.

7.2.5 Defective FAX RECEIVE (1)

• Description FORWARD is functioning, but RECEIVE is not functioning or the received data is corrupt.

Check and Cause	Solution
1. Check if there is a NOISE line by pressing on-hook dial and listening	1. If you can hear a noisy line when using on-hook dial, replace or repair the telephone line.
2. Use a different fax machine to receive from the same sender (if possible on the same wall socket).	2. Replace the LIU.

7.2.6 Defective FAX RECEIVE (2)

• Description Received data are lengthened or cut in the printing.

Check and Cause	Solution
1. Check if there is a NOISE line by pressing on-hook dial and listening	1. If you can hear a noisy line when using on-hook dial, replace or repair the telephone line
2. Ask sender to send to another fax machine (if possible connected to the same wall socket)	2. Replace LIU or main PBA in sequence.

7.2.7 Defective FAX RECEIVE (3)

• Description The phone is ringing continuously, but it set does not answer the call.

Check and Cause	Solution
Check that the RECEIVE Mode is set to FAX MODE.	If the fault persists even when the RECEIVE Mode is changed to FAX MODE then replace the LIU and the Main B'd in sequence.

7.2.8 Defective FAX RECEIVE (4)

• Description Received data is reduced by more than 50% in the printing.

Check and Cause	Solution
Check the FAX status of the forwarding side.	This is a problem with the sending fax machine. Correct the setting on the remote machine..

7.2.9 Defective Automatic Receiving

• Description The automatic receiving function is not working.

Check and Cause	Solution
1. Check that the RECEIVE Mode is set to FAX MODE.	1. If the RECEIVE Mode is set to the TEL MODE, reset it to the FAX MODE. 2. Even after the RECEIVE Mode is changed to the FAX Mode, the problem persists then try to replace the LIU and the Main B'd in sequence.

7.3 Copy Problems

7.3.1 White Copy

• Description Blank page is printed out when copying.

Check and Cause	Solution
1. Check the Scanner Cover is properly closed.	1. Room light can pass through a thin original.
2. Check shading profile.	2. Redo shading profile in the tech mode.
3. Check white/black reference voltage on Main PBA. e.q • CIS_SI, CIS_CLK at Chip(U28)	3. Replace U28 if it is defective. • U28-Pin6 (CIS_SI) • U28-Pin8 (CIS_CLK)

7.3.2 Black Copy

• Description Black page is printed out when Copying.

Check and Cause	Solution
1. Check for CIS problem on the Main PBA.	1. Check the CIS harness is properly connected.
2. Check shading profile.	2. Redo shading profile in the tech mode.

7.3.3 Abnormal noise

• Description There is noise from the ADF when copying.

Check and Cause	Solution
1. Check the Scanner Motor, gearbox and rollers.	1. Check for correct assembly of gears and motor. Ensure no parts are fouling and there are no foreign objects in the mechanism or scanner path. Replace any worn parts
2. Check the Motor Driver on Driver PBA.	2. Replace the main PBA.

7.3.4 Defective Image Quality

• Description The copied image is excessively light or dark

Check and Cause	Solution
1. Check shading profile.	1. Redo shading profile in the tech mode.
2. Check the gap between original and scanner glass.	2. A gap of more than 0.5 mm can cause a blurred image. Ensure rollers and cover close correctly. Replace as necessary.
3. Check printing quality.	3. See "Print" troubleshooting.

7.4 Paper Feed problems – Causes and Solutions

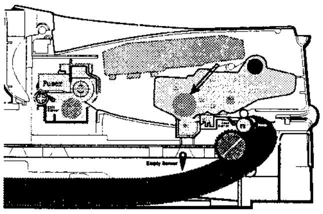
7.4.1 Wrong Print Position

• Description Printing begins at wrong position on the paper.

Check and Cause	Solution
Wrong sensor timing caused by defective feed sensor actuator.	Replace the defective actuator

7.4.2 JAM 0

• Description
1. Paper does not exit from the cassette.
2. Jam-0 occurs when the paper feeds into the printer.

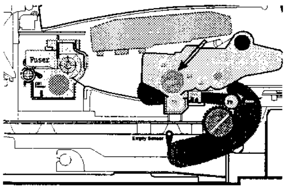


Check and Cause	Solution
1. Check the Solenoid by using Tech Mode.	1. Replace the solenoid.
2. Check cassette/MP knock-up plate and springs.	2. Repair / replace as required
3. Check paper separator pad	3 Clean with soft cloth dampened with IPA (Isopropyl Alcohol) or water. Replace if required.
4. Check the pick up roller for contamination and correct assembly.	4. Clean with soft cloth dampened with IPA (Isopropyl Alcohol) or water. Replace if required
5. If continuous clusters occur, check all rollers between pickup and registration sensor.	5. Ensure all rollers are clean and free to operate correctly.
6 If the paper feeds into the printer and Jam 0 occurs, perform Tech Mode to check feed sensor.	6. Check the SMPS PBA, Main PBA and all connections. Replace any faulty parts or the

7.4.3 JAM 1

• Description

1. Paper is jammed in front of or inside the fuser.
2. Paper is stuck in the exit roller and in the fuser just after passing through the Actuator-Feed.

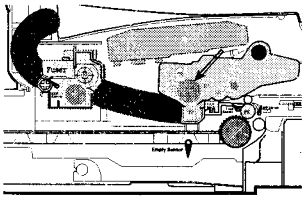


Check and Cause	Solution
1. If the recording paper is jammed in front of or inside the fuser.	1. Replace the Exit-Sensor, SMPS or main PBA.
2. If the recording paper is stuck in the exit roller and the fuser just after passing through the Actuator-Feed, Feed Actuator may be defective.	2. Reassemble the Actuator-Feed and Spring-Actuator if the movement is bad. Replace if necessary.

7.4.4 JAM 2

• Description

1. Recording paper is jammed in front of or inside the fuser.
2. Recording paper is stuck in the discharge roller and in the fuser just after passing through the Actuator-Feed.



Check and Cause	Solution
1. If the paper is completely fed out of the printer, but Jam 2 occurs: The Exit sensor may be defective. • After the paper is completely discharged the Exit sensor actuator should return to its original position to shut the photo-sensor. It may stick open or return only slowly due to contamination be paper debris or foreign objects.	1. Check if the exit sensor actuator is defective. • Check if the actuator exit is deformed (Check if the lever part is deformed). • Check whether burrs occur in the assembly part of the exit actuator and if the actuator operates smoothly. • Check if foreign objects or paper debris are preventing the correct operation of the actuator.
2. If the paper is rolled in the Fuser Roller: • This occurs when a Guide claw is broken away, damaged or deformed. • It occurs when the Spring of a Guide claw is broken or damaged. • It occurs when the Heat-Roller or Pressure-Roller is seriously contaminated with toner.	2. If the paper is stuck in the fuser : disassemble the fuser and remove the jammed paper, and clean the surface of the pressure roller with dry gauze. Check all ribs, claws and springs.

7.4.5 Multi-Feeding

• Description Multiple sheets of paper are fed at once.

Check and Cause	Solution
1. Check that the paper size guides are set correctly (cassette and MPF tray).	1. Adjust paper guides.
2. Solenoid malfunction (the solenoid does not work properly).	2. Replace the solenoids or PBA as appropriate.
3. Friction Pad is contaminated.	3. Clean the friction pad rubber with a soft cloth dampened with IPA (Isopropyl Alcohol) or water.
4. Paper has a rough surface texture.	4. Use paper with a smother surface finish.

7.4.6 Paper rolled in the fuser

• Description Paper rolled around fuser rollers or 'Concertina' jam

Check and Cause	Solution
1. Contamination of the pressure roller or heat roller.	1. After disassembling the fuser, clean contamination from between the heat roller and the thermistor and also clean contamination from the pressure roller. Clean the surface of the rollers with IPA or water
2. Damaged or deformed ribs, claws or springs.	2. Check for damage or deformation of the print claws and the holder plate claws, and repair or replace as appropriate.

7.4.7 Paper rolled on the OPC Drum

- **Description** Paper is rolled up in the OPC.

Check and Cause	Solution
1. Paper is too thin.	1. Use paper that conforms to the printer specification.
2. The face of paper is curled.	2. Ensure paper is stored properly to prevent curl. **Note.** To remove paper rolled in the OPC. • Remove the toner cartridge from the set, taking care not to touch the green surface. Use the gearwheel at the side to rotate the OPC drum and pull the paper from the cassette. • Clean fingerprints on the OPC gently with soft tissue, taking care not to scratch the surface.

7.5 Printer Faults – Causes and Solutions

7.5.1 Fuser Error

- **Description** A message "Open Heat Error/Over heat/Heating Error' is displayed in the LCD panel.

Check and Cause	Solution
1. Thermostat, fuser power cable or heat lamp is open circuit.	1. Replace the whole fuser assembly if the thermostat is open circuit.
2. Thermistor is open circuit.	2. Replace the whole fuser assembly if the thermistor sensor is faulty.
3. Heat lamp ON/OFF test	3. Replace the fuser.
4. Drive gear melted	

7.5.2 LSU Error

- **Description** A message "PMOTOR ERROR/HSYNC ERROR' is displayed in the LCD panel.

Check and Cause	Solution
1. LSU cable or connector faulty. 2. LSU motor is faulty. 3. Check the HSYNC signal.	Use TECH mode to test the LSU - Replace the LSU - Replace a main board if the same error persists after replacing a LSU.

7.5.3 Fuser gear melts due to overheating causing Paper Jam.

• Description Constant Jam where paper is entering Fuser unit.
Fuser rollers do not turn

Check and Cause	Solution
1. Check the Heat Lamp, thermostat and thermistor	1. Use EDC Mode to test the fuser. Replace Fuser unit Replace SMPS or Main PBA as appropriate.

7.5.4 Paper Empty

• Description Paper Empty is displayed in the LCD panel even when paper is loaded in the cassette.

Check and Cause	Solution
1. Deformed paper sensor actuator or faulty sensor.	1. Replace the defective actuator or sensor.
2. SMPS PBA or Main PBA is defective	2. Replace the SMPS PBA or MAIN PBA as appropriate.
3. Faulty cables or connectors.	

7.5.5 Paper Empty without indication

• Description The paper empty message does not appear in the LCD when the paper cassette is empty.

Check and Cause	Solution
1. Deformed paper sensor actuator or faulty sensor.	1. Replace the defective actuator.
2. SMPS PBA or Main PBA is defective .	2. Replace the SMPS PBA or MAIN PBA as appropriate

7.5.6 Cover Open

• Description The Cover Open message appears on the LCD even when the print cover is closed.

Check and Cause	Solution
1. The 'Open Cover' microswitch may be stuck or faulty	1. Use TECH mode("cover sensor test") to check cover switch operation. Check and replace switch if necessary.
2. The tab on the front cover may be damaged or broken	2. Replace the front cover.
3. Check the connector and cables between Switch and main PBA.	3. Replace the Main Control board or Cover Open S/W as necessary.

7.5.7 No error message when the cover is open

• Description The Cover Open message does not appears on the LCD even when the print cover is open.

Check and Cause	Solution
1. The 'Open Cover' microswitch may be stuck or faulty	1. Use TECH mode("cover sensor test") to check cover switch operation. Check and replace switch if necessary.
2. Check the connector and cables between Switch and main PBA.	2. Replace the Main Control board or Cover Open S/W as necessary.

7.5.8 Defective motor operation

• Description Main motor is faulty and paper does not feed into the printer, resulting in Jam 0'

Check and Cause	Solution
1. The main motor harness or Motor PCB may be faulty.	1. Check the motor harnesses and connectors, replace if defective.. If the problem persists replace the main PBA. **Note** Check motor operation using EDC Mode.

7.5.9 No Power

• Description When system power is turned on the LCD panel does not come on.

Check and Cause	Solution
1. Check if the power input and SMPS output are normal.	1. Replace the power supply cord or SMPS. Check power fuse and SMPS fuses replace if necessary.
2. LCD panel does not come on but normal start up sounds are heard.	2. Replace the OP panel.
3. After replacing SMPS display does not come on and no start up sounds are heard.	3. Replace the main PBA panel.

7.5.10 Printed Vertical Lines become curved

• Description When printing, vertical lines are not straight.

Check and Cause	Solution
1. Check stability of 24V supply to LSU.	1. 24V stable - Replace LSU. 24V unstable replace SMPS, if the problem persists replace the main PBA.

7.6 Toner Cartridge Service

Only toner cartridges supplied by Samsung should be used. Printing defects or set damage caused by the use of non-approved toner cartridges or un-licensed toner refills are not covered by the guarantee.

7.6.1 Precautions on Safe-keeping of Toner Cartridge

Excessive exposure to direct light for more than a few minutes may cause damage to the cartridge.

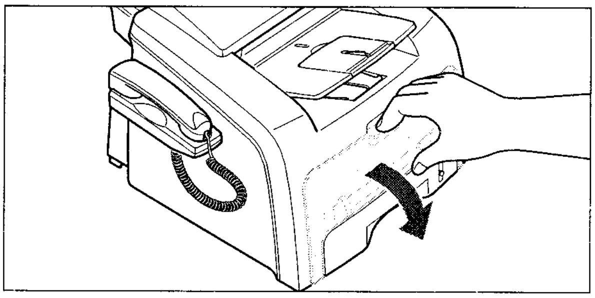
7.6.2 Service for the Life of Toner Cartridge

If the printed image is light due to the toner supply becoming low you can temporarily improve the print quality by redistributing the toner (Shake the toner cartridge), however you should replace the toner cartridge to solve the problem permanently.

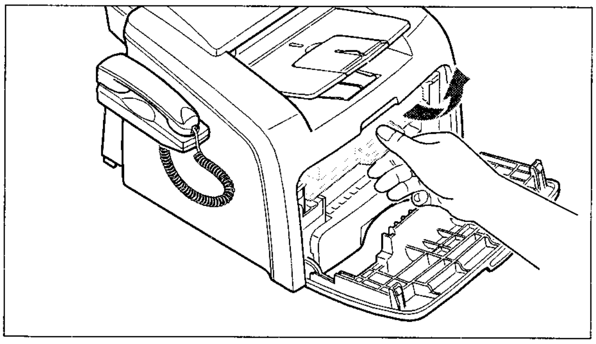
7.6.2.1 Redistributing Toner

When the toner cartridge is near the end of its life, white streaks or light print occurs. The LCD displays the warning message, "Toner Low." You can temporarily reestablish the print quality by redistributing the remaining toner in the cartridge.

1. Open the Front Cover.

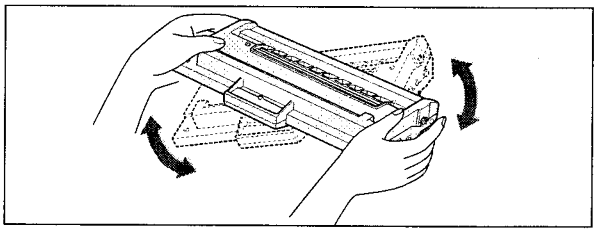


2. Lightly pushing the used cartridge down, pull it out.

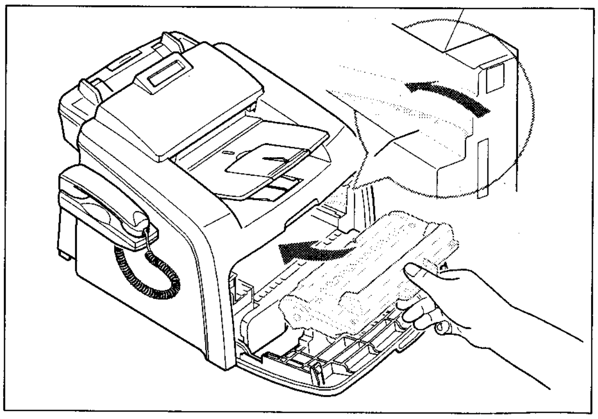


Note : Help the environment by recycling your used toner cartridge. Refer to the recycling brochure packed with the toner cartridge for details.

3. Unpack the new toner cartridge and gently shake it horizontally four or five times to distribute the toner evenly inside the cartridge.



4. Save the box and the cover for shipping. Slide the new toner cartridge in until it locks into place.



7.6.3 Standard of guarantee for consumable parts.

Please refer to User's Manual or Instructions on Fax/Printer Consumables SVC manual for the criteria for judging the quality of consumable parts the standard of guarantee on those parts.

- **Spotting a refilled cartridge by eye.**
  One way security screws are used in the manufacture of the cartridge – check if these are damaged.

7.6.4 Error messages in the LCD window related to toner.

This section explains messages on the LCD that are related to the data stored in the EEPROM in the toner cartridge.

7.6.4.1 Toner Low

- Explanation: The amount of toner remaining is less than 10%
- Solution: The cartridge is almost empty or life-expired – replace the cartridge.

7.6.4.2 Toner Empty

- Explanation: The toner cartridge is empty
- Solution: Replace the cartridge.

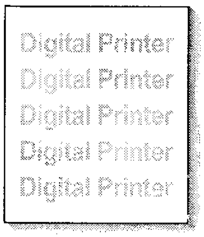
7.6.4.3 Drum Warning

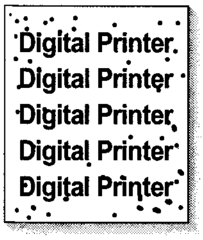
- Explanation: This message appears when the OPC drum is nearing the end of its life (14,000pages). This means that the life of the mechanical parts in the cartridge has expired (this is not an indication of toner remaining).
- Solution: After printing about 15,000 pages, in a worst case scenario, the waste toner collector might overflow and it may cause the system to fail. Also after 15,000 pages the OPC drum surface will be becoming worn and print quality will degrade, print images will become misty. It is therefore necessary to replace the cartridge even though there may be toner left in it.
  When this message occurs there are approximately 1,000 pages left.

7.6.4.4 Replace Drum

- Explanation: The toner cartridge mechanical life is expired.
- Solution: Replace the cartridge.

7.6.5 Signs and Measures of Poor toner cartridge

Fault	Signs	Cause & Check	Solution
Light image and partially blank image (Cartridge life is ended.)  Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer	• The printed image is light or dirty and untidy. • Parts of the image are not printed. • Periodically a "tick tick" noise occurs.	1. If the image is light or dirty and untidy - Shake the toner cartridge and then recheck. OK: Lack of toner, so the life is nearly expired. 2. Some part of image is not printed - Shake the toner cartridge and then recheck. (1)NG: clean the LSU window with a cotton swab, then recheck. (2)OK: Lack of toner, so the life is nearly closed. 3. Periodically a noise like "tick tick" occurs - Measure the time between ticks. 4. White vertical stripes on the whole or part of the page : Shake the toner cartridge and then recheck. OK: Lack of toner, so the life is nearly expired	1. All of 1, 2, 3 If image quality improves by shaking, replace with a new toner cartridge. Perhaps up to 100 pages left before out of toner. 2. For item 2- If image quality improves after cleaning the LSU window then the toner cartridge is normal. (Contamination on the LSU window has caused image quality problems.) 3. For item 3- If the time between ticks is about 2 seconds, the toner inside the toner cartridge is almost exhausted. (Purchase and replace with a new toner cartridge. Perhaps up to 200 pages left before out of toner) 4. For item 3- This is a phenomenon caused by lack of toner, so replace the toner cartridge.
Toner Contamination	• Toner contamination of the printed page at regular intervals down the page. • Random Toner contamination over the whole or large parts of the paper surface.	1. Contamination at regular intervals. (a)Check the distance between contamination marks. (b)Check the appearance of both ends of the toner cartridge OPC drum. 2. Random page contamination. (a) Check that the terminals (contact points) of the toner cartridge and the set are clean. (b) Check that the terminals (contact points) of the toner cartridge and the set are not damaged.	1.(a) Refer to section 6.5 1.(b) If both ends of the OPC drum are contaminated with toner: Check no. of pages printed using this cartridge – perhaps waste toner collector is full. 2. Clean all HV contacts. If the problem persists replace the cartridge.

Fault	Signs	Cause & Check	Solution
White Black spot  Digital Printer Digital Printer Digital Printer Digital Printer Digital Printer	• Light or dark black dots on the image occur periodically. • White spots occur in the image periodically.	1. If light or dark black dots occur at regular intervals this is because the toner cartridge rollers are contaminated with foreign substance or paper particles. (1)38mm interval : Charge roller (2)95mm interval : OPC cycle 2. If white spots occur in a black image at intervals of 95mm, or black spots occur elsewhere, the OPC drum is damaged or foreign substance is stuck to the surface. 3. If a black and white or graphic image is partially broken at irregular intervals, the transfer roller's life has been expired or the transfer voltage is abnormal.	1. For item 1 - Run OPC Cleaning Mode Print 4-5 times repeatedly to remove excess toner. Especially check for foreign substances on the OPC surface Clean with a clean gauze moistened with IPA Isopropyl Alcohol) take care not to damage the OPC surface. ⚠ Never use other forms of alcohol. 2. For Item 2 - If running OPC Cleaning Mode Print 4-5 times does not resolve the problem : at intervals of 37.7mm - place the toner cartridge. : at intervals of 75.5mm – clean OPC drum. 3. For item 3 - Change the transfer roller because the life of the transfer roller has expired. (Check the transfer voltage and readjust if necessary.)
Recycled product	• Poor appearance of the toner cartridge. • Dirty or rough printouts. • Bad background in the image.	1. Poor appearance of the toner cartridge. (a)Check for damage to label and if different materials are used. (b)Check the appearance of parts of the toner cartridge, such as frame, hopper, screws 2. Unclean and rough printouts. (a)Check that the terminals (contact point) of the toner cartridge and the set are clean. (b)Check that the terminals (contact point) of the toner cartridge and the set are not damaged.	1. For Item 1 the cartridge is judged to be a recycled product - (a) If there is any evidence of disassembling the toner cartridge. (b) If materials other than normal parts of the toner cartridge are added or substituted. 2. Clean all HV contacts. If the problem persists replace the cartridge. **Note** If the cartridge is judged to be recycled then these types of problems can occur when the toner cartridge is recycled over 2 times. If 'nearly empty' cartridges are collected for re-use this is judged as recycling the toner cartridge.

Fault	Signs	Cause & Check	Solution
Ghost & Image Contamination	• The printed image is too light or dark, or partially contaminated black. • Totally contaminated black. (Black image printed out) • The density of printouts is too dark and ghost occurs.	1. The printed image is too light or dark, or partially contaminated black. (a) Check if foreign substance or toner are stuck to the terminals (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. 2. Totally contaminated black. (Black image printed out) (a) Check if foreign substances are stuck to the terminal (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. (Especially check the charge roller terminal.) 3. The printed image is dark and ghost occurs. (a) Check if foreign substances are stuck to the terminal (point of contact) of the toner cartridge or set. (b) Check if the terminal assembly is normal. (Especially check the developer roller terminal.)	1. All of Items 1, 2, 3 (a) Clean the contacts on the toner cartridge. (b) Clean the contact points on the set. (c) If the terminal assembly is damaged repair or replace the terminals in the set or replace the cartridge 2. In Item 2 This is particularly related to problems with the charge roller contact. Pay close attention to the charge roller contacts. 3. In Item 3 This is particularly related to problems with the developer bias voltage contact. Pay close attention to the charge roller contacts.

7.7 Software Problems – Causes and Solutions

7.7.1 The printer is not working (1)

• Description While Power turned on, the printer is not working in the printing mode.

Check and Cause	Solution
1. Run Self-Test Mode: using the menu buttons print the test page. (Menu, Enter, Enter).	1. If the test print works that means there are no problems in the printer itself. If the test printing does not work that means the printer is faulty and the problem is not due to computer software or driver settings.
2. Check that the PC and the printer are properly connected and that the toner cartridge installed correctly.	2. Replace the printer cable. If the problem is not solved even after the cable is replaced, check the amount of the remaining toner. (refer to Toner Cartridge Service 7-6, Page 7-25)
3. Printing is not working in the Windows.	3. Check that the connection between PC and printer port are correcct. If you use windows, check that the printer driver in the controller is set up correctly set up, the correct port is selected and 'Use On-line' is selected in the driver. If the printer driver is properly set up try printing a test page from the driver properties. Check in which program printing is not working. Try opening 'Memo Pad' and printing. If the printer is not working in a certain program, adjust the setup within that program. Sometimes, the printout is normal within the Windows basic programs, but it's not working in a particular program. In this case, uninstall and re-install the new driver. If the printer is not working in the Windows basic programs and you are printing using the parallel port check the port setting in CMOS is on ECP and that the address is IRQ 7 and 378 (for parallel port 1). Try using USB instead of parallel – or vice versa.
4. Check that the printer cable is directly connected to the printer.	4. If you have other devices that need to share the printer port try temporarily disconnecting these devices 9and perhaps even uninstalling their drivers) to ensure the printer works by itself. If you are using a USB hub try connecting directly to the back of the PC instead.

7.7.2 The printer is not working (2)

• Description After receiving the print command there is no response at all or print speed is low due to wrong setup of the environment rather than malfunction of the printer itself.

Check and Cause	Solution
1. Ensure you have sufficient free hard disk space for the temporary work files created during printing.	1. Not working with the message 'insufficient printer memory' means there is a hard disk space problem rather than a printer RAM problem. In this case provide more space on the hard disk. Secure more space using the disk utilities program.
2. Printing error occurs even if there is enough space in the hard disk.	2. The connection of the cable and printer port is not correct. Check that the cable is properly connected and if you are using the parallel port check that the port settings in CMOS is correct.
3. Check the parallel-port-related items in the CMOS Setup.	3. For the printer port, Select ECP. SPP and normal normal modes support 8-bit data transfer, while ECP Mode supports 12-bit data transfer.
4. Reboot the system to print.	4. If the regular font is not printing, the cable or the printer driver may be defective. Turn the PC and printer off, and reboot the system to print again. If not solved, double-click the printer in my computer If the regular fonts are not printed this time again. the cable must be defective so replace the cable with new one.

7.7.3 Abnormal Printing

• Description Printing does not work – even after replacing the cable
Printer does not work at all or strange fonts are printed,

Check and Cause	Solution
1. Set up the parallel port using CMOS SETUP.	1. Ensure that ECP (best) or SPP is selected in the CMOS (BIOS) setup.
2. Printer Driver Error.	2. Ensure that the correct driver is loaded. Use the driver supplied on the CD or downloaded from the Samsung web site. DO NOT use the Microsoft driver supplied with the Windows operating system. If the printer is a GDI or SPL type printer ensure that ALL OTHER GDI or SPL drivers are uninstalled as Windows allows only 1 of this type of driver to be loaded.
3. Error message "insufficient memory". (The printing job sometimes stops due to insufficient virtual memory, this is caused by insufficient space on the hard disk.)	3. Delete any unnecessary files to secure enough space on the hard disk and start the print job again.

7.7.4 SPOOL Error

• Description SPOOL (simultaneous peripheral operations online) is the process Windows uses to manage print jobs. Jobs are processed and then stored on the hard disk until the printer is ready to accept them

Check and Cause	Solution
1. Insufficient space on the hard disk in the directory assigned for the basic spool.	1. Delete any unnecessary files to provide more space for spool storage.
2. If previous printing errors were not solved.	2. There may be files from previous failed print jobs on the hard disk with the name in the form '*.jnl'. Delete these files and Reboot Windows to restart the printer.
3. There may be conflict with other drivers or programs.	3. Shut down all other programs except the current one, if possible.
4. When an application program or the printer driver is damaged.	4. Delete the printer driver completely and reinstall it.
5. When some files related to the OS are damaged or virus infected.	5 After rebooting the computer, check for viruses, restore the damaged files and reinstall the application program which is not working properly.
6. Memory is less than suggested.	6. Add up more memory to the PC.

⚠. How to delete the data in the spool manager.

In the spool manager, the installed drivers and the list of the documents waiting to be printed are shown. Select the document to be deleted and check delete in the menu.

If the job you are deleting is the current job when you delete the job data that has already been transferred to the printer's memory will still be printed. If there is a problem with the printer (out of toner, offline, out of paper etc.) the job may take a long time to delete as it must wait for a time out.

8. Exploded Views and Parts List

8.1 Main Exploded View .... page(8-2)
8.2 Top Cover Exploded View .... page(8-5)
8.3 OPE Ass'y Exploded View .... page(8-7)
8.4 Scan Upper Ass'y Exploded View .... page(8-9)
8.5 Main Frame Exploded View .... page(8-11)
8.6 Fuser Unit Exploded View .... page(8-14)
8.7 Exit Cover Exploded View .... page(8-16)
8.8 Cassette Unit Exploded View .... page(8-18)

- **Deal drawings and service parts are declared for the items with higher rate of inferiority and replaceable in the level of service description only.**
- **If inferiority occurs, you can replace the parts by the unit declared in deal drawings and service items.**

Way to observe Part Code & Description

Part code and Description is quoted and controlled by determined standard. Refer to this determined standard, it will help with ordering Part.

- **There are two kinds of Part code Inscription type.**

●●●●-●●●●●●	ex) 2007-007961	R-CHIP
■■●●-●●●●●■ It shows part specific	ex) JB96-01268A	ELA UNIT-COVER TOP

(● : figure, ■ : character (alphabet))

Type 1 : Controlled by Company : It can be commonly used for all kinds of product SEC produce. Mostly, electronics Parts.

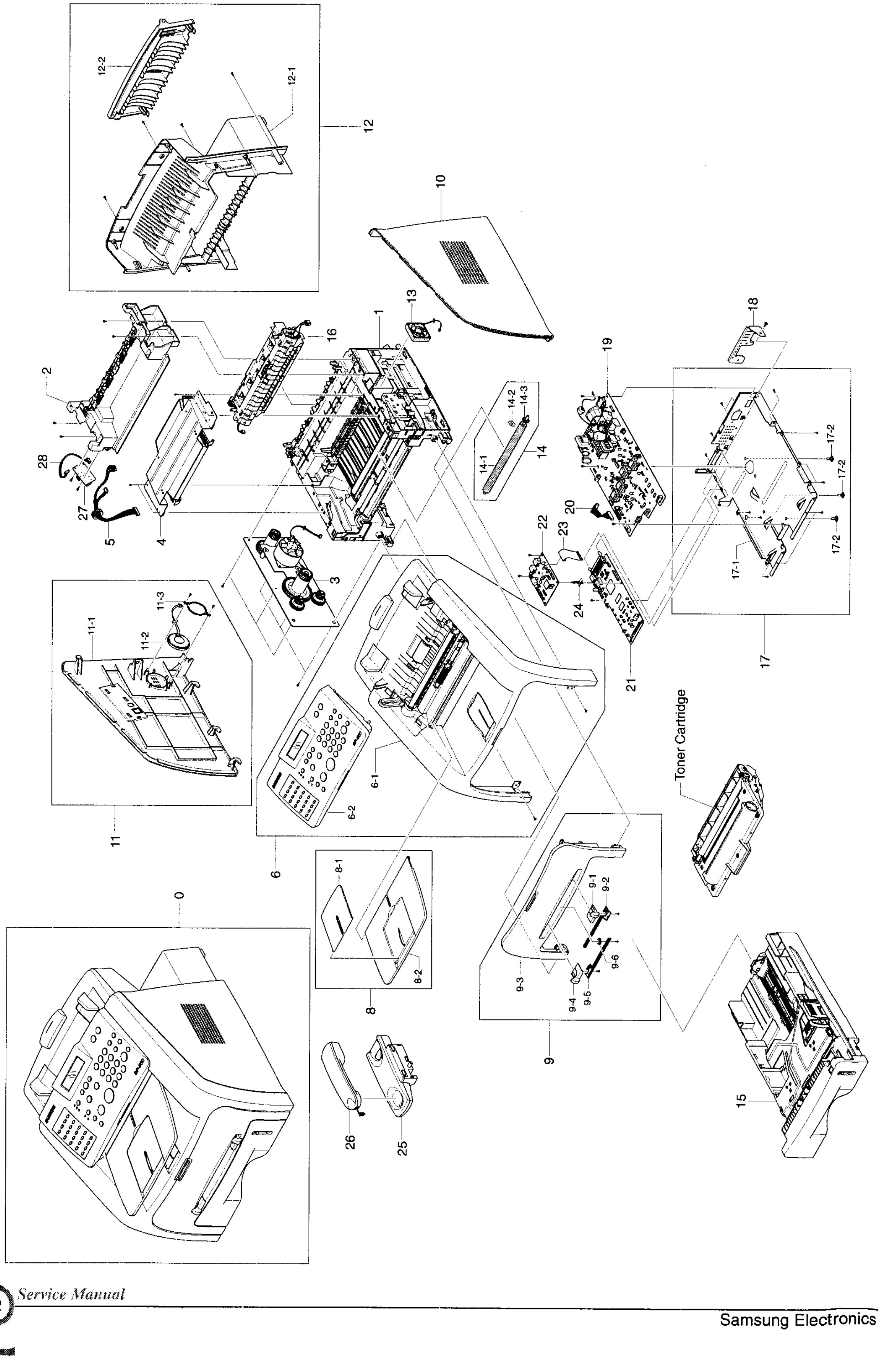
Type 2 : Controlled by Division : It is used or one produce. Mostly, Mostly, mechanical Parts.

- **A/S privately used part :** It is only used for A/S .
- **Ass'y part :** Assembled by more than 2 Parts. If necessary part is not A/S Part, Ass'y part including necessary par can be used. It is shown in the diagram and drawing of SVC manual.

- Ass'y part and A/S privately used Part is distinguished by part Code and Description. The are inscription type 2. It is recognized by Part character and front side of description.

DIVISION	PART CODE	DESCRIPTION
A/S Private	**81-****** (JB81-00039A)	AS-***** (AS-USE)
ASS'Y Part	**75-****** (JB75-00068A)	MEC-***** (MEC-CHUTE)
ASS'Y Part	**92-****** (JB92-01131A)	PBA ****** (PBA MAIN-CONTROLLER)
ASS'Y Part	**97-****** (JB97-01089A)	MEA ****** (MEA UNIT-PULLEY IDLE)

8.1 Main Exploded View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12-1
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27
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14-1
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14
18
19
17-2
17-2
17-2
17-1
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24
21
11-1
11-2
11-3
11
6-1
6-2
6
Toner Cartridge
0
8-1
8-2
8
9-1
9-2
9-3
9-4
9-5
9-6
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26
25
15

Main Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

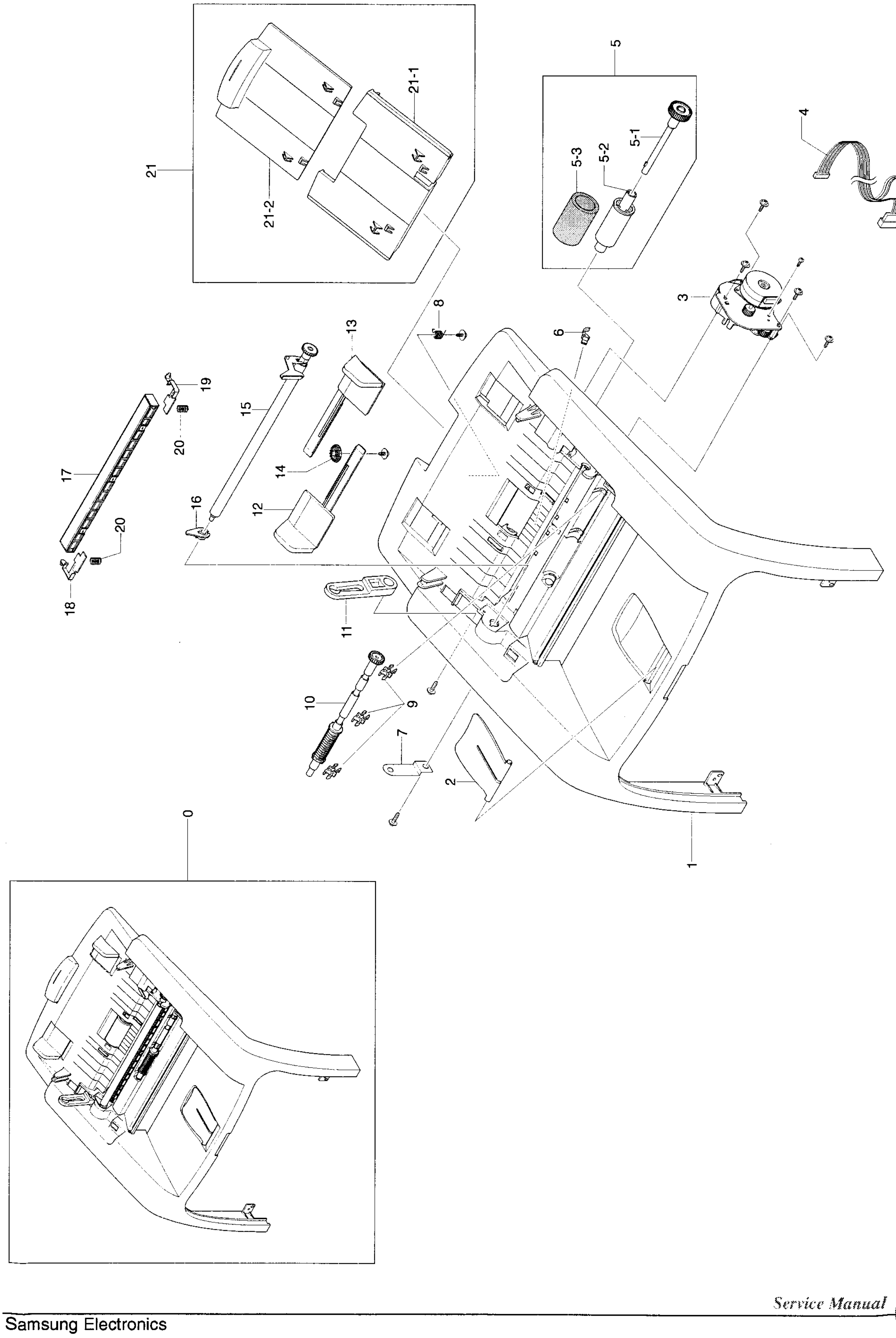
No.	Description	SEC.Code	Q'ty	SA	Remark
0	SF560 / SF-565P				
1	ELA HOU-UNIT FRAME_220V	JC96-02710A	1	O	⚠ 220V
	ELA HOU-UNIT FRAME_110V	JC96-02731A	1	O	⚠ 110V
2	MEA UNIT-COVER EXIT	JC97-01854A	1	O	
3	ELA UNIT-RX DRIVE	JC96-02733A	1	O	
4	UNIT-LSU	JC59-00018A	1	O	
5	CBF HARNESS-LSU	JC39-00242A	1	O	
6	ELA HOU-SCAN	*appendix reference	1	O	
6-1	ELA HOU-COVER TOP	JC96-02950A	1	O	
6-2	ELA HOU-OPE	JC96-02952A	1	O	
8	MEA UNIT-STACKER	JC97-01856A	1	O	
8-1	TRAY-M-STACKER A	JC63-00324A	1	X	
8-2	TRAY-M-STACKER B	JC63-00325A	1	X	
9	MEA UNIT-COVER FRONT	JC97-01746K	1	O	
9-1	ADJUST-M-MANUAL_R	JC70-00303F	1	O	
9-2	ADJUST RACK M-MANUAL	JC70-00304A	2	O	
9-3	COVER-M_FRONT	JC63-00103H	1	O	
9-4	ADJUST M-MANUAL-L	JC70-00302F	1	O	
9-5	GEAR-RACK_PINION	JC66-00387A	1	O	
10	COVER-M-SIDE R	JC63-00320A	1	O	
11	ELA HOU-COVER SIDE L	JC96-02974A	1	O	
11-1	COVER-M-SIDE L	JC63-00319A	1	X	
11-2	SPEAKER	3001-001494	1	O	
11-3	IPR-UNIT FIXING BRAC	GB70-10500A	1	O	
12	MEA UNIT-COVER REAR	JC97-01855A	1	O	
12-1	COVER-M-REAR	JC63-00321A	1	X	
12-2	COVER-M-FACE UP	JC63-00142D	1	X	
13	FAN-DC	JC31-00027A	1	O	
14	MEA ETC-TR	JC97-01793A	1	O	
14-1	ROLLER-TRANSFER ROLLER	JC66-00528A	1	O	
14-2	PPR-STACER_TR	JC72-00851A	1	X	
14-3	GEAR-TRANSFER	JC66-00395A	1	O	
15	MEA UNIT-CASSETTE	JC97-01750E	1	O	
16	ELA HOU-FUSER, 220V	JC96-02813A	1	O	⚠ 220V
	ELA HOU-FUSER, 110V	JC96-02812A	1	O	⚠ 110V
17	MEA UNIT-SHIELD ENGINE	JC97-01794A	1	O	
17-1	SHIELD-ENGINE, ROCKY	JC63-00144A	1	O	
17-2	SUPPORTER	6103-001056	3	O	

Main Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
18	BRACKET-P-INLET, ROCKEY	JC61-00693A	1	O	
19	SMPS(V1), 110V	JC44-00060A	1	O	⚠ 110V
	SMPS(V2), 220V	JC44-00063A	1	O	⚠ 220V
20	CBF HARNESS-ENGINE	JC39-00240B	1	O	
21	PBA MAIN-NIKE2_LOW	JC92-01590A	1	O	SF-560
	PBA MAIN-NIKE2_LOW	JC92-01576A	1	O	SF-565P
22	PBA-LIU-NIKE2-LOW	*appendix reference	1	O	
23	CBF SIGNAL-LIU FFC	JC39-00317A	1	O	
24	SUPPORTER	6103-001047	2	O	
25	MEA-UNIT-CRADLE	JC97-01858A	1	O	
26	ELA HOU-HANDSET	JC96-01629F	1	O	
27	HOOK PBA	JC92-01570A	1	O	
28	HOOK HANESS	JC39-00311A	1	X	

8.2 Top Cover Exploded View


21
21-1
21-2
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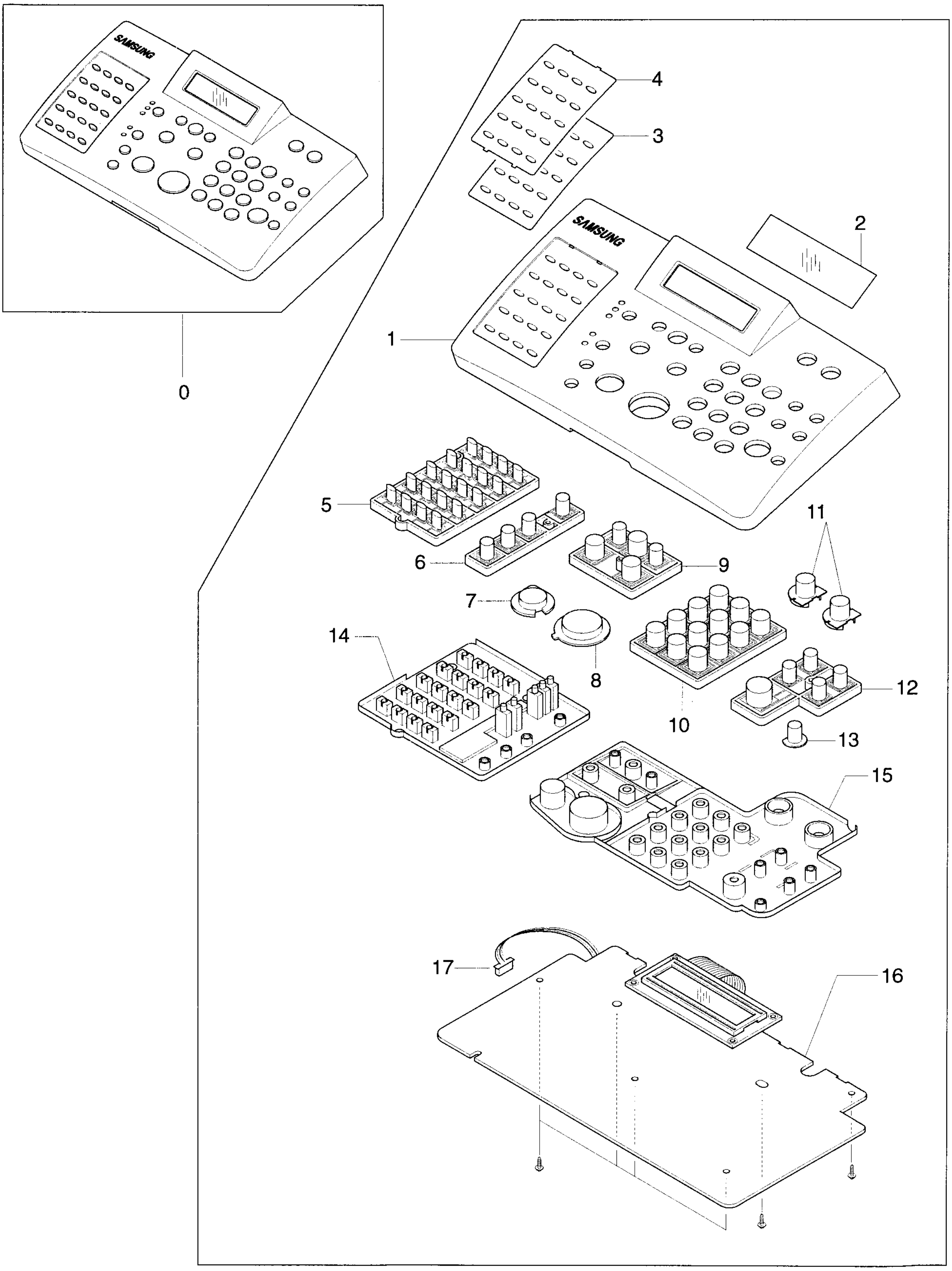
Top Cover Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA-HOU COVER TOP	JC96-02950A	1	O	
1	COVER-M_TOP	JC63-00323A	1	O	
2	PMO-STACKER RX	JC72-00973A	1	O	
3	ELA HOU-SCAN MOTOR	JC96-02949A	1	O	
4	CBF HARNESS-MOTOR	JC31-00032A	1	O	
5	ADF-SUB	*	1	X	
5-1	SHAFT-M-DRIVER ADF	JC66-00680A	1	O	
5-2	PMO-SLEEVE ADF	JB72-00136A	1	O	
5-3	MEC-ROLLER ADF	JB75-00052A	1	O	
6	PMO-BUSHING_F/DOWN	JC72-00387A	1	O	
7	PLATE-P_GROUND CIS	JC61-00865A	1	O	
8	SPRING-TS	6107-001224	1	X	
9	PMO-BUSHING TX	JC72-40744A	3	O	
10	SHAFT-M_EXIT 21	JB66-00204A	1	O	
11	LINK-M_SCAN OPEN	JC66-00681A	1	O	
12	GUIDE-M_DOC L	JC61-00858A	1	O	
13	GUIDE-M_DOC R	JC61-00859A	1	O	
14	GEAR-PINION	JB66-00126A	1	O	
15	MEC-ROLLER WHITE	JB75-00053A	1	O	
16	PMO-BEARING SHAFT	JC72-41191B	1	O	
17	CONTACT IMAGE SENSOR	0609-001174	1	O	
18	GUIDE-M_CIS L	JB61-00138A	1	O	
19	GUIDE-M_CIS R	JB61-00137A	1	O	
20	SPRING ETC-CIS	JB61-70938A	2	O	
21	MEA UNIT-CHUTE	JC97-01865A	1	O	
21-1	CHUTE-M_A	JC61-00860A	1	O	
21-2	CHUTE-M_B	JC61-00861A	1	O	

8.3 OPE Ass'y Exploded View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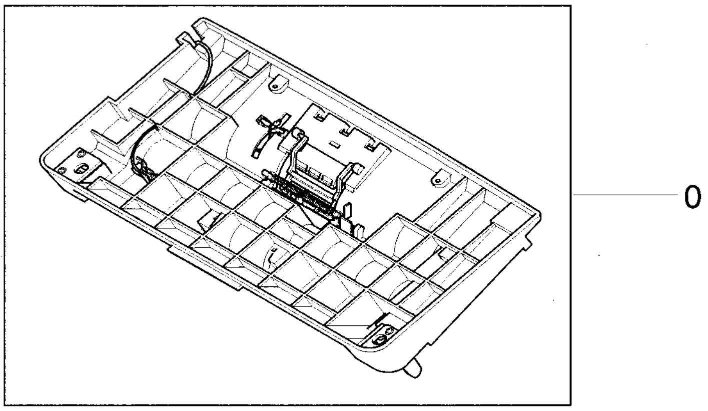
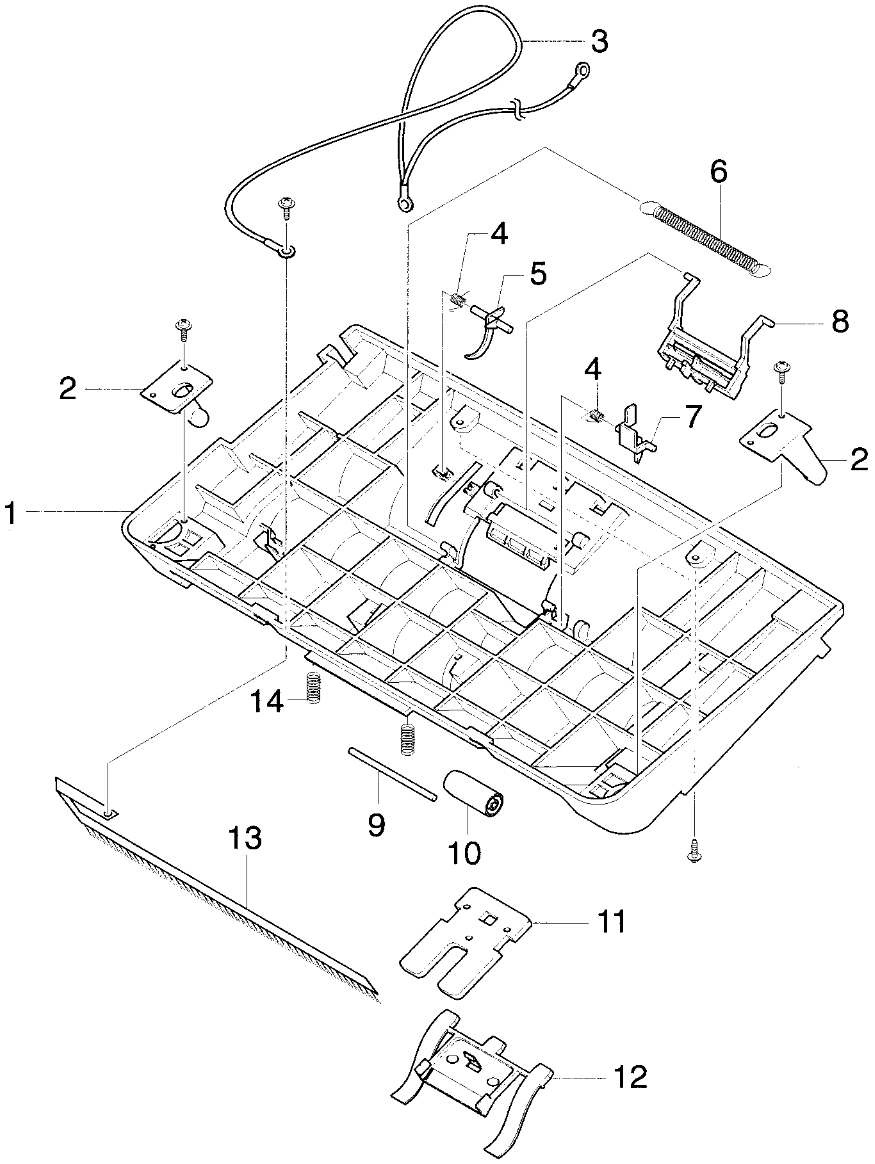
OPE Ass'y Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-OPE	*appendix reference	1	O	SF-565P
	ELA HOU-OPE	*appendix reference	1	O	SF-560
1	COVER-M_OPE	*appendix reference	1	O	SF-565P
	COVER-M_OPE	*appendix reference	1	O	SF-560
2	PCT-LCD WINDOW	JC72-00672A	1	O	
3	SHEET-ONE TOUCH	JC63-00328A	1	O	
4	LABEL(P)-ONE TOUCH	JC68-01221A	1	X	
5	KEY-M_ONE TOUCH	JC64-00113A	1	O	
6	KEY-M_COPY	JC64-00112A	1	O	
7	PMO-KEY STOP	JB72-00103B	1	O	
8	KEY-M_START	JC64-00114A	1	O	
9	KEY-M_SCROLL	JC64-00056A	1	O	
10	KEY-M_TEL	JC64-00053A	1	O	
11	KEY-M_TONER SAVE	JC64-00058A	2	O	
12	KEY-M_FAX	JC64-00060A	1	O	
13	KEY-M_SHIFT	JC64-00115A	1	O	
14	RUBBER-ONE TOUCH	JC73-00172A	1	O	
15	RUBBER-TEL	JC73-00171A	1	O	
16	PBA SUB-OPE(LOW)	JC92-01558A	1	O	
17	OPE HARNESS	JC39-00310A	1	O	

8.4 Scan Upper Ass'y Exploded View

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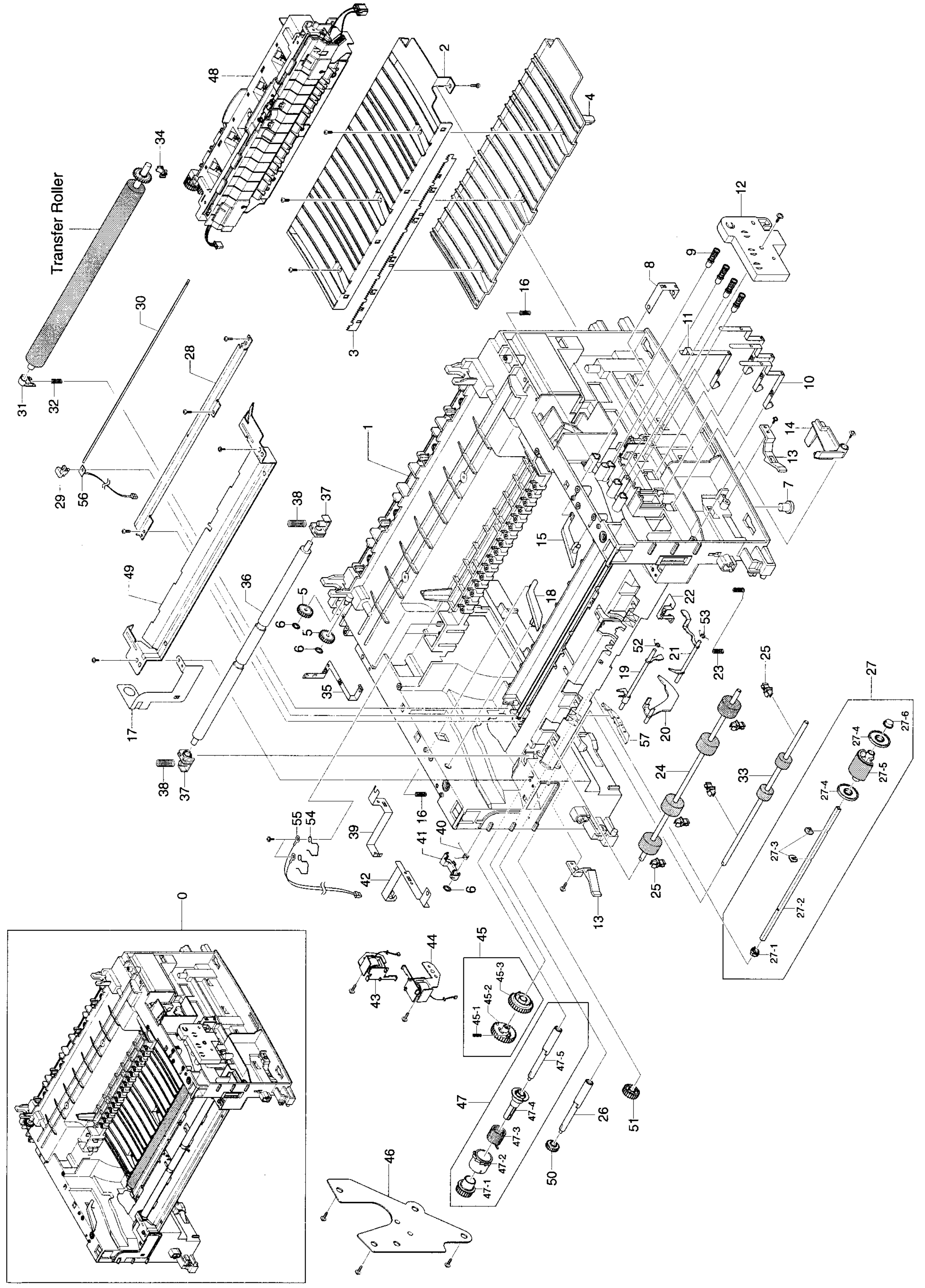
Scan Upper Ass'y Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-SCAN UPPER	JC97-01857A	1	O	
1	FRAME-M_SCAN UPPER	JC61-00864A	1	O	
2	PMO-LOCKER MP	JC72-41398A	1	O	
3	CBF HARNESS-SCAN GND	JC39-00319A	1	O	
4	SPRING ETC-LEVER SENSOR	JB61-00107A	2	O	
5	LEVER-M-SENSOR DOC	JB66-00219A	1	O	
6	SPRING-ETC-ADF	JB61-00084A	1	O	
7	PMO-LOCKER_MP	JC70-41398A	1	O	
8	PMO-SUPPORT ADF	JG72-41083A	1	O	
9	SHAFT-IDLE FEED	JC66-00558A	1	O	
10	PMO-RILL PINCH	JG72-40663A	1	O	
11	RPR-RUBBER ADF	JC73-00032A	1	O	
12	PMO-HOLDER RUBBER	JG72-40044A	1	O	
13	BRUSH-ANTISTATIC	JC67-00055A	1	O	
14	SPRING-ETC-EXIT ROLL	JC61-70911A	2	X	

8.5 Main Frame Exploded View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Main Frame Exploded View Parts List

SA : Service Available
O : Service available X : Service not available

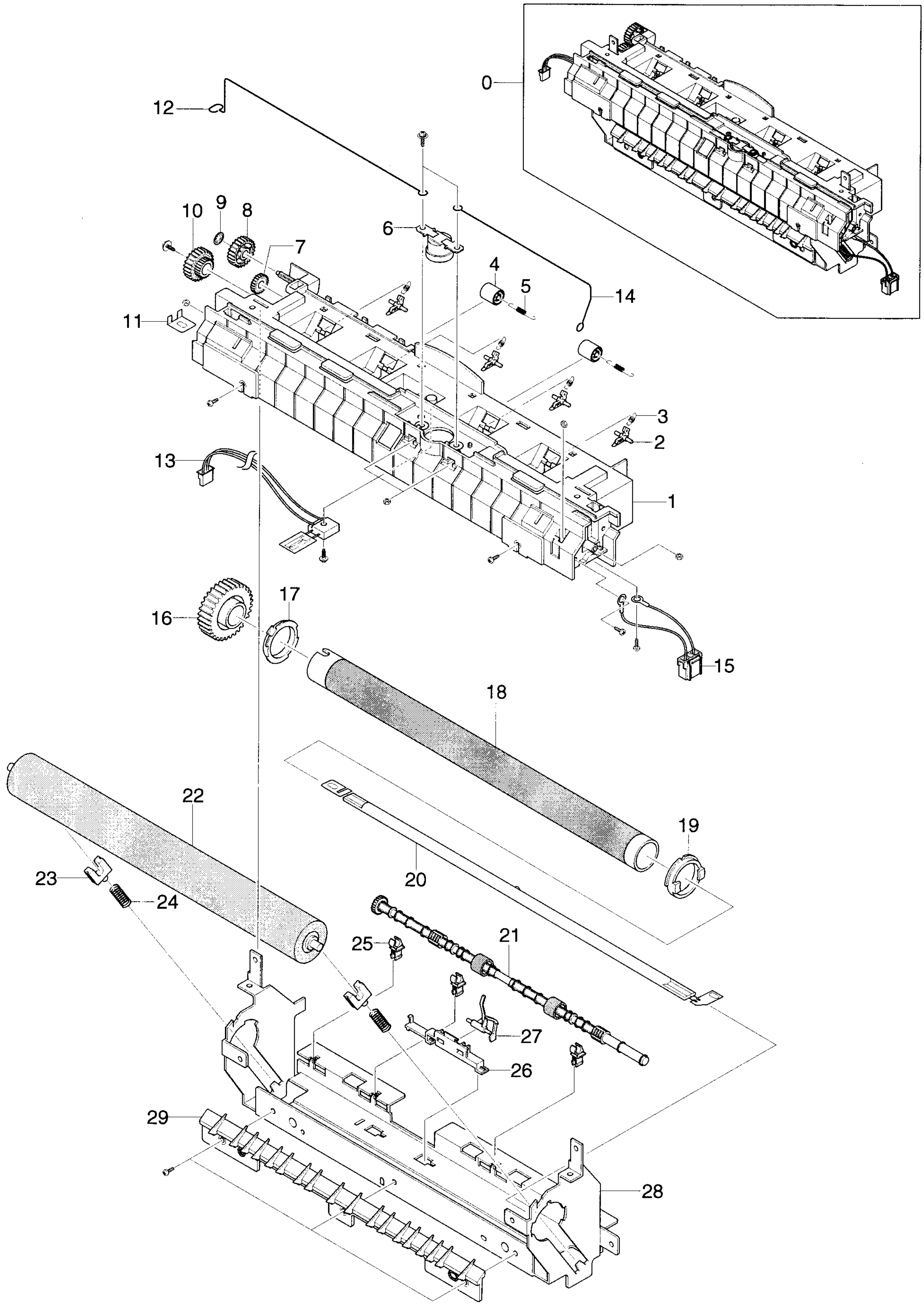
No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-UNIT FRAME_220V	JC96-02710A	1	O	⚠ 220V
	ELA HOU-UNIT FRAME_110V	JC96-02731A	1	O	⚠ 110V
1	FRAME-M-BASE	JC61-00579A	1	O	
2	GUIDE-P-TR	JC61-00607A	1	O	
3	PLATE-P-SAW	JC61-00604A	1	O	
4	GUIDE-M-TR RIB	JC61-00594A	1	O	
5	PMO-GEAR_EXIT_DRV16	JC72-00143A	2	X	
6	RING-CS	6044-000001	3	X	
7	FOOT-FRONT	JC61-00836A	2	X	
8	IPR-P-GROUND_TR	JC70-00311A	1	X	
9	MEC-TERMINAL	JC75-00049A	4	O	
10	IPR-P-TERMINAL CON	JC70-00312A	3	O	
11	IPR-P-TERMINAL CR	JC70-00313A	1	O	
12	HOUSING-TERMINAL	JC61-00592A	1	O	
13	PMO-LOCKER CST	JC72-00983A	2	O	
14	PMO-ACTUATOR CVR OPEN	JC72-00974A	1	O	
15	PMO-PLATE GUIDE DEVE_R	JC72-00985A	1	O	
16	SPRING ETC-GUIDE DEVE	JC61-70932A	2	X	
17	IPR-P-GROUND_GUIDE PAPER	JC70-00458A	1	O	
18	PMO-PLATE GUIDE DEVE_L	JC72-00984A	1	O	
19	PMO-ACTUATOR FEED	JC72-00976A	1	O	
20	PMO-ACTUATOR EMPTY	JC72-00975A	1	O	
21	PMO-ACTUATOR MANUAL	JC72-00977A	1	O	
22	IPR-P-GROUND_EARTH TR	JC70-00307A	1	X	
23	SPRING-ETC	6107-001162	1	O	
24	ROLLER-FEED ROLLER 1	JC66-00526A	1	X	
25	PMO-BUSHING FEED	JC72-00382B	5	X	
26	SHAFT-FEED	JC66-00398A	1	X	
27	AS-PICK UP	JC81-01693A	1	O	
27-1	BUSH-M-PICK_UP L	JC61-00586A	1	X	
27-2	SHAFT-P-PICK_UP	JC66-00399A	1	X	
27-3	STOPPER-PICK_UP	JC61-00593A	2	X	
27-4	PMO-IDLE PICK_UP	JC72-00982A	2	O	
27-5	SPONGE-ROLLER PICK_UP	JC72-01231A	1	O	
27-6	BUSH-M-PICK_UP R	JC61-00587A	1	O	
27-7	HOUSING-M-PICK_UP	JC61-00591A	1	O	
28	IPR-P-EARTH TRANSFER	JC70-00307A	1	O	
29	HOLDER-PTL	JC61-00583A	1	O	
30	LENS-PTL	JC67-00027A	1	O	
31	BUSH-M-TR L	JC61-00588A	1	O	

Main Frame Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
32	SPRING ETC-TR L HAWK	JC61-00047A	1	X	
33	ROLLER-FEED	JC66-00598A	1	O	
34	PMO-BUSHING_TR(L)	JC72-00102A	1	O	
35	IPR-P-GROUND_FUSER	JC70-00310A	1	O	
36	SHAFT-FEED IDLE	JC66-00527A	1	O	
37	BUSH-M-FEED IDLE	JC61-00585A	2	X	
38	SPRING ETC-TR	JC61-70958A	2	X	
39	IPR-P_GROUND_DRIVE2	JC70-00335A	1	O	
40	SPRING-TS	6107-001170	1	O	
41	CAM-M-PICK_UP	JC66-00377A	1	O	
42	IPR-P-GROUND_DRIVE	JC70-00308A	1	O	
43	SOLENOID-HB (PICK-UP)	JC33-00009A	1	O	
44	SOLENOID-HB (MANUAL)	JC33-00010A	1	O	
45	AS-GEAR PICK_UP	JC81-01692A	1	O	
45-1	PMO-GEAR PICK_UP B	JC72-00980A	1	O	
45-2	PMO-GEAR PICK_UP A	JC72-00979A	1	O	
45-3	SPRING-CS	6107-001167	1	X	
46	BRACKET-P-FEED	JC61-00602A	1	O	
47	MEA UNIT-CLUTCH	JC97-01788A	1	O	
47-1	GEAR-FEED 1	JC66-00393A	1	O	
47-2	PMO-COLLAR_SPRING	JC72-00978A	1	O	
47-3	SPRING-TS	6107-001170	1	X	
47-4	PMO-HUB CLUTCH	JC72-00981A	1	O	
47-5	SHAFT-FEED	JC66-00398A	1	X	
48	ELA HOU-FUSER 220V, ROCKY	JC96-02813A	1	O	⚠ 220V
	ELA HOU-FUSER 110V, ROCKY	JC96-02812A	1	O	⚠ 110V
49	GUIDE-P-PAPER	JC61-00718A	1	O	
50	GEAR-FEED 2	JC66-00394A	1	O	
51	GEAR-IDLE 23	JC66-00396A	1	O	
52	SPRING-TS	6107-001164	1	X	
53	SPRING-TS	6107-001165	1	X	
54	IPR-P-TERMINAL DEVE KEY	JC7000340A	2	X	
55	CBF HARNESS-OPC_FUSE	JC39-00229A	1	X	
56	PBA MAIN-PTL	JC92-01440B	1	O	
S	SCREW-TAPTITE	6003-000119	9	O	
S	SCREW-TAPTITE	6003-000196	12	O	
S	SCREW-ASS'Y TAPT	6006-001078	3	O	

8.6 Fuser Unit Exploded View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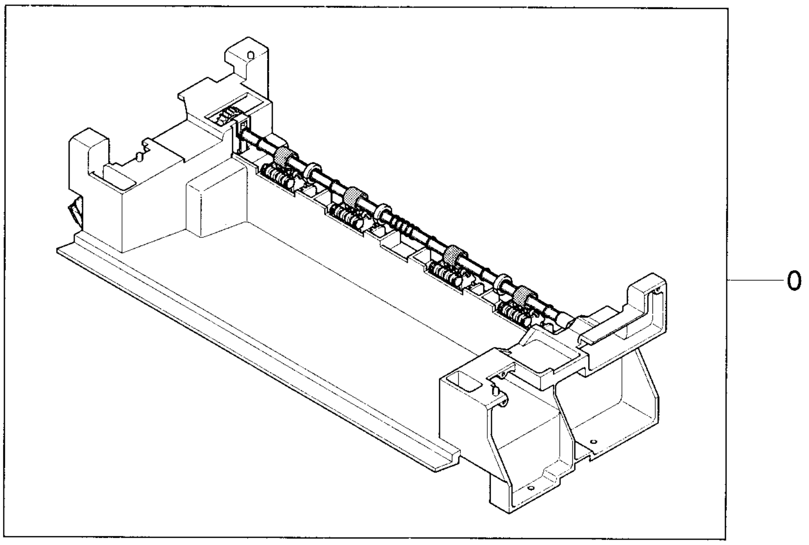
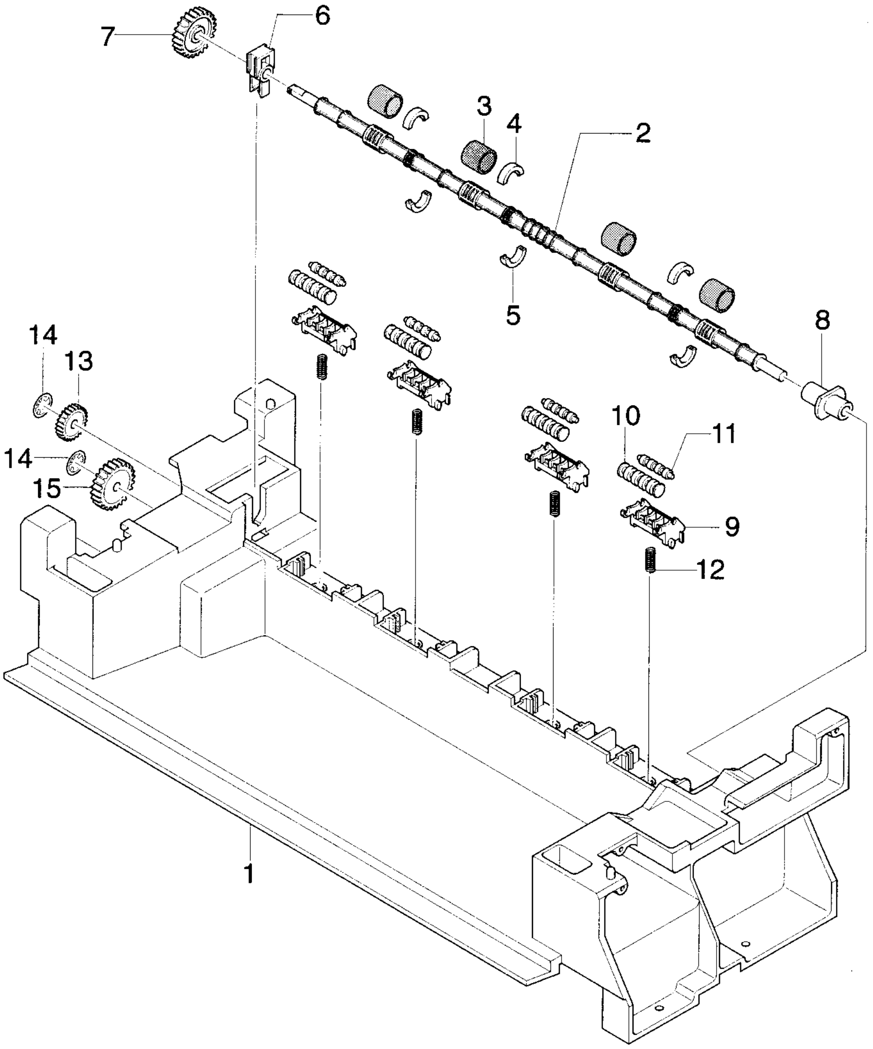
Fuser Unit Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-FUSER 220V	JC96-02813A	1	O	⚠ 220V
	ELA HOU-FUSER 110V	JC96-00812A	1	O	⚠ 110V
1	COVER-M-FUSER	JC63-00105A	1	X	
2	HOLDER-M-PLATE CLAW	JC61-00584A	4	X	
3	SPRING ETC-CLAW	JC61-00064A	4	X	
4	PMO-ROLLER EXIT	JC72-40361A	2	X	
5	SPRING ETC-FUSER EXIT	JC61-70976A	2	X	
6	THERMOSTAT-150	JC47-00005A	1	O	
7	PMO-GEAR_EXIT_DRV16	JC72-00143A	1	X	
8	GEAR-IDLE 23	JC66-00396A	1	X	
9	RING-CS	6044-000001	1	X	
10	GEAR-RDCN 25/15	JC66-00397A	1	O	
11	ELECTRODE_LAMP2	JC70-00466A	1	X	
12	ELECTRODE-WIRE_L	JC70-00450A	1	X	
13	THERMISTOR-NTC	1404-001298	1	O	
14	ELECTRODE-WIRE_R	JC70-00449A	1	X	
15	CBF HARNESS-FUSER 220V	JC39-00238A	1	O	⚠ 220V
	CBF HARNESS-FUSER 110V	JC39-00239A	1	O	⚠ 110V
16	GEAR-FUSER, Z37	JC66-00564A	1	O	
17	BUSH-M-HR L	JC61-00589A	1	X	
18	ROLLER-HEAT	JC66-00601A	1	O	
19	BUSH-M-HR R	JC61-00590A	1	O	
20	LAMP-HALOGEN	4713-001183	1	O	⚠ 220V
	LAMP-HALOGEN	4713-001182	1	O	⚠ 110V
21	ROLLER-M-EXIT F/UP	JC66-00380A	1	X	
22	ROLLER-PRESSURE	JC66-00600A	1	O	
23	BEARING-PRESSURE/R	JC66-10901A	2	X	
24	SPRING-CS	6107-001168	2	X	
25	PMO-BUSHING TX	JC72-00382A	3	X	
26	HOLDER-ACTUATOR	JC61-00581A	1	X	
27	PMO-ACTUATOR_EXIT	JC72-00987A	1	O	
28	IPR-P-FRAME_FUSER	JC70-00317A	1	X	
29	GUIDE-M-INPUT	JC61-00595A	1	X	
30	SPRING-TS	6107-001165	1	X	
31	RMO-RUBBER_EXIT	JC73-00017A	2	X	
32	NUT-HEXAGON	6021-000222	5	X	
33	LABEL(P)-CAUTION, HOT_FUSER	JC68-30928D	1	X	
34	COVER-M-EXIT LOWER	JC63-00244A	1	X	
35	PLATE-P-CLAW	JC61-00605A	4	X	

8.7 Exit Cover Exploded View

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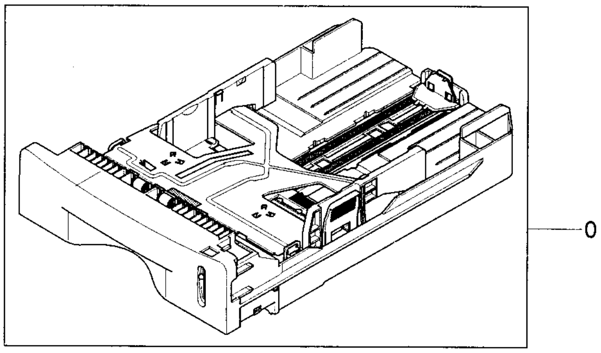
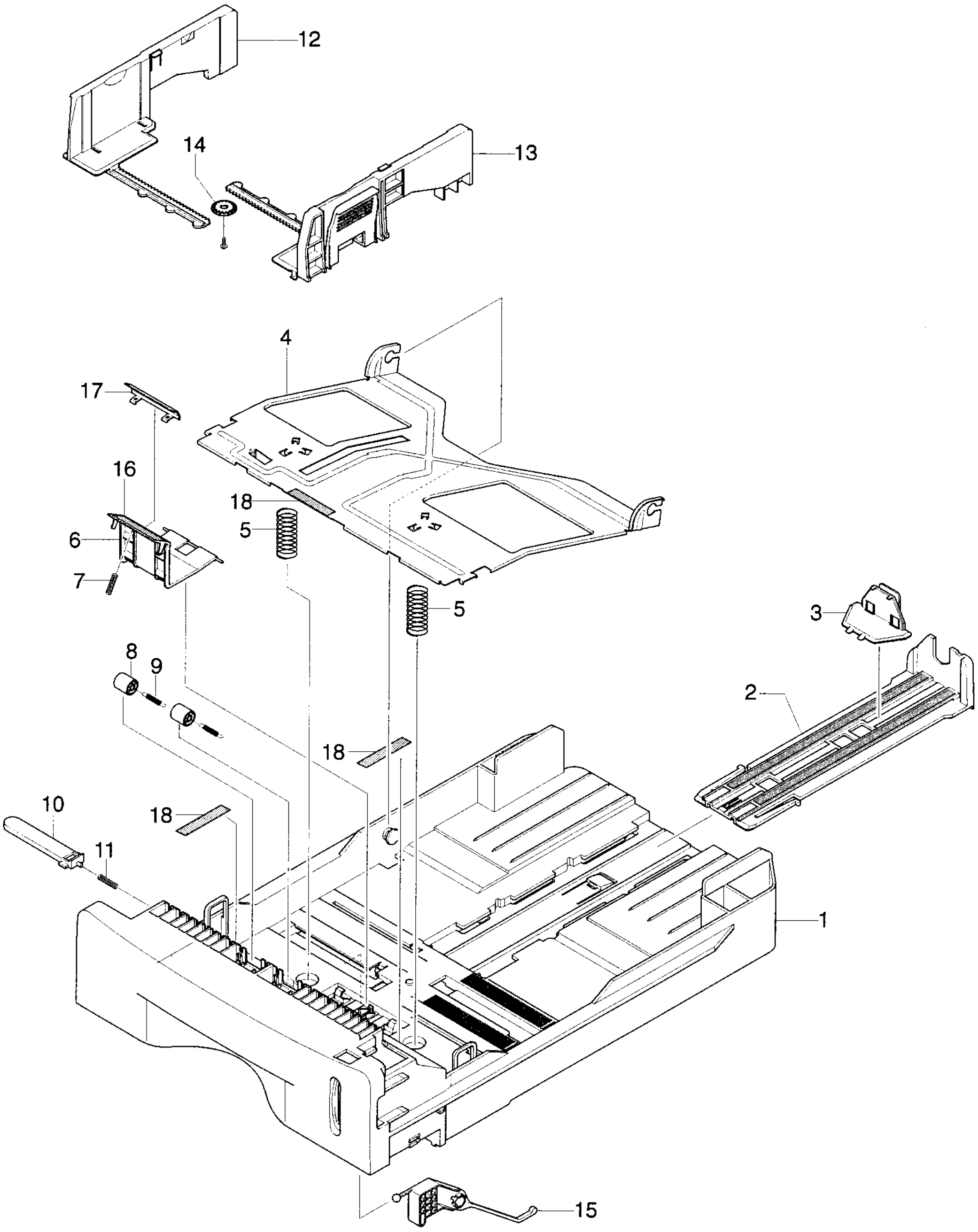
Exit Cover Exploded View Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-COVER EXIT	JC97-01854A	1	O	
1	COVER-M_EXIT	JC63-00322A	1	X	
2	ROLLER-EXIT_EXIT F/DOWN	JC66-00378A	1	X	
3	RMO-RUBBER EXIT	JC73-40915A	4	X	
4	ROLLER-M_DECURL	JC66-00626A	6	X	
6	MEC-BEARING, EXIT	JC75-10529A	1	X	
7	GEAR-EXIT F/DOWN	JC66-00028A	1	X	
8	BEARING-EXIT FU	JC66-10201A	1	X	
9	HOLDER-M-EXIT F/DOWN	JC61-00582A	4	X	
10	ROLLER_EXIT, MAIN	JC72-41801A	4	X	
11	ROLLER_EXIT, FR	JC72-41802A	4	X	
12	SPRING-EXIT F/DOWN	6107-001163	4	X	
13	PMO-GEAR_EXIT_DRV 16	JC72-00143A	1	X	
14	RING-CS	6044-000001	2	X	
15	GEAR-IDLE 23	JC66-00396A	1	X	

8.8 Cassette Unit Exploded View

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Cassette Unit Exploded View Parts List

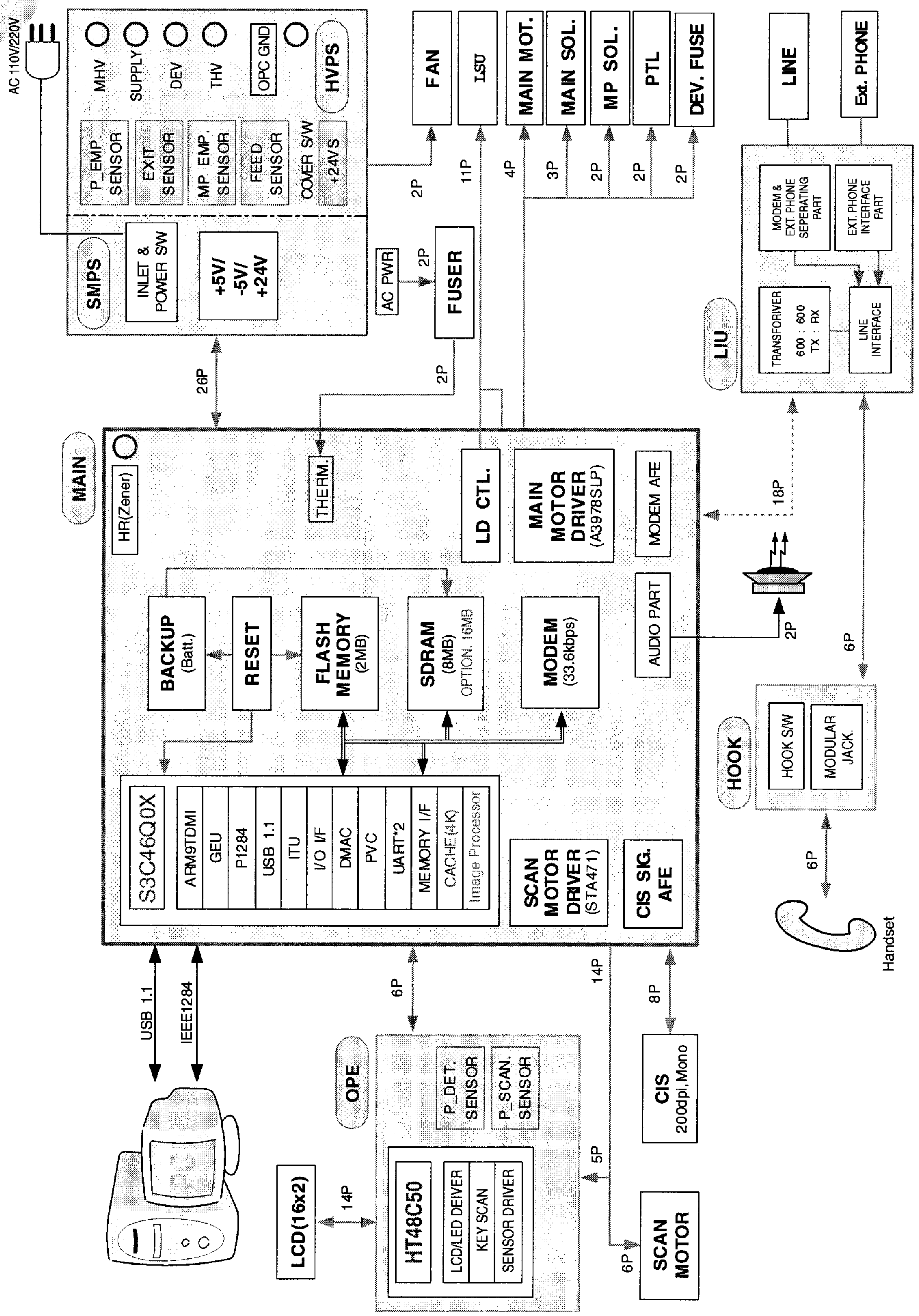
SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-CASSETTE, USA	JC97-01750E	1	O	
1	FRAME-M_CASSETTE	JC61-00578D	1	X	
2	GUIDE-M-EXTENSION L2	JC61-00918B	1	O	
3	PMO-EXTENSION SMALL	JC72-00971A	1	O	
4	PLATE-P-KNOCK_UP	JC61-00603A	1	X	
5	SPRING-CS	6107-001166	2	X	Spring-Knock_up
6	HOLDER-M-PAD	JC61-00580A	1	X	
7	SPRING ETC-EXIT ROLL FD	JC61-70911A	1	X	
8	ROLLER-M-IDLE FEED	JC66-00529A	2	X	
9	SPRING-ES	6107-001047	2	X	Spring-Feed
10	PMO-PLATE_LOCKER	JC72-00972A	1	X	
11	SPRING ETC-LOCKER,PLATE	JG61-70531A	1	X	
12	ADJUST-M-CASSETTE_L	JC70-00300A	1	O	
13	ADJUST-M-CASSETTE_R	JC70-00301A	1	O	
14	GEAR-PINION	JG66-40003A	1	X	
15	INDICATOR-M-LEVER INDICATOR	JC64-00040A	1	O	
16	RPR-FRICTION PAD	JC73-00140A	1	O	
17	IPR-PLATE PAD	JC70-00314A	1	X	
18	RPR-PAD CASSETTE	JC73-00141A	3	X	

Appendix - Parts code Information(SF-560/SF-565P)

MODEL CODE	COUNTRY	PBA-LIU	ELA HOU-SCAN	ELA HOU-OPE	COVER-M_OPE	MEA UNIT-COVER REAR
SF-560/XAA	USA	JC92-01578A	JC96-02977A	JC96-02951A	JC63-00424A	JC97-01855B
SF-565P/XAA			JC96-02976A	JC96-02952A	JC63-00326A	JC97-01855A
SF-560/XEC	SPAIN	JC92-01578D	JC96-02977D	JC96-02951E	JC63-00424D	JC97-01855B
SF-565P/XEC			JC96-02976D	JC96-02952E	JC63-00326E	JC97-01855A
SF-560/XEF	FRANCE	JC92-01578D	JC96-02977G	JC96-02951C	JC63-00424H	JC97-01855D
SF-560/XEG	AUSTRIA	JC92-01578D	JC96-02977B	JC96-02951B	JC63-00424B	JC97-01855D
SF-565P/XEG		JC92-01578D	JC96-02976B	JC96-02952B	JC63-00326B	JC97-01855C
SF-560/XEP	PORTUGAL	JC92-01578D	JC96-02977H	JC96-02951F	JC63-00424E	JC97-01855B
SF-565P/XEP		JC96-02976G	JC96-02976G	JC96-02952F	JC63-00326F	JC97-01855A
SF-560/XET	ITALY	JC92-01578D	JC96-02977C	JC96-02951D	JC63-00424C	JC97-01855B
SF-565P/XET		JC92-01578D	JC96-02976C	JC96-02952D	JC63-00326D	JC97-01855A
SF-560/XEU	UK	JC92-01578B	JC96-02977A	JC96-02951A	JC63-00424A	JC97-01855B
SF-565P/XEU			JC96-02976A	JC96-02952A	JC63-00326A	JC97-01855A
SF-560/XEV	RUSSIA	JC92-01578C	JC96-02977F	JC96-02951J	JC63-00424G	JC97-01855B
SF-565P/XEV			JC96-02976E	JC96-02952J	JC63-00326J	JC97-01855A
SF-560/XIL	CHINA	JC92-01578E	JC96-02977E	JC96-02951H	JC63-00424F	JC97-01855B
SF-565P/XIL			JC96-02976J	JC96-02952H	JC63-00326H	JC97-01855A
SF-560/EUE	GREECE	JC92-01578D	JC96-02977A	JC96-02951A	JC63-00424A	JC97-01855B
SF-565P/EUE			JC96-02976J	JC96-02952H	JC63-00326H	JC97-01855A

9. Block Diagram


AC 110V/220V
MHV
SUPPLY
DEV
THV
OPC GND
HVPS
P_EMP. SENSOR
EXIT SENSOR
MP EMP. SENSOR
FEED SENSOR
COVER S/W
+24VS
SMPS
INLET & POWER S/W
+5V/ -5V/ +24V
FAN
LSU
MAIN MOT.
MAIN SOL.
MP SOL.
PTL
DEV. FUSE
2P
11P
4P
3P
2P
2P
2P
AC PWR
2P
FUSER
26P
2P
LINE
Ext. PHONE
MODEM & EXT. PHONE SEPERATING PART
EXT. PHONE INTERFACE PART
TRANSFORIVER 600 : 600 TX : RX
LINE INTERFACE
LIU
18P
MAIN
HR(Zener)
THERM.
LD CTL.
MAIN MOTOR DRIVER (A3978SLP)
MODEM AFE
AUDIO PART
2P
BACKUP (Batt.)
RESET
FLASH MEMORY (2MB)
SDRAM (8MB) OPTION: 16MB
MODEM (33.6kbps)
6P
HOOK
HOOK S/W
MODULAR JACK.
6P
Handset
S3C46Q0X
ARM9TDMI
GEU
P1284
USB 1.1
ITU
I/O I/F
DMAC
PVC
UART*2
MEMORY I/F
CACHE(4K)
Image Processor
SCAN MOTOR DRIVER (STA471)
CIS SIG. AFE
USB 1.1
IEEE1284
6P
14P
8P
OPE
P_DET. SENSOR
P_SCAN. SENSOR
HT48C50
LCD/LED DEIVER
KEY SCAN
SENSOR DRIVER
LCD(16x2)
14P
CIS 200dpi,Mono
5P
6P
SCAN MOTOR

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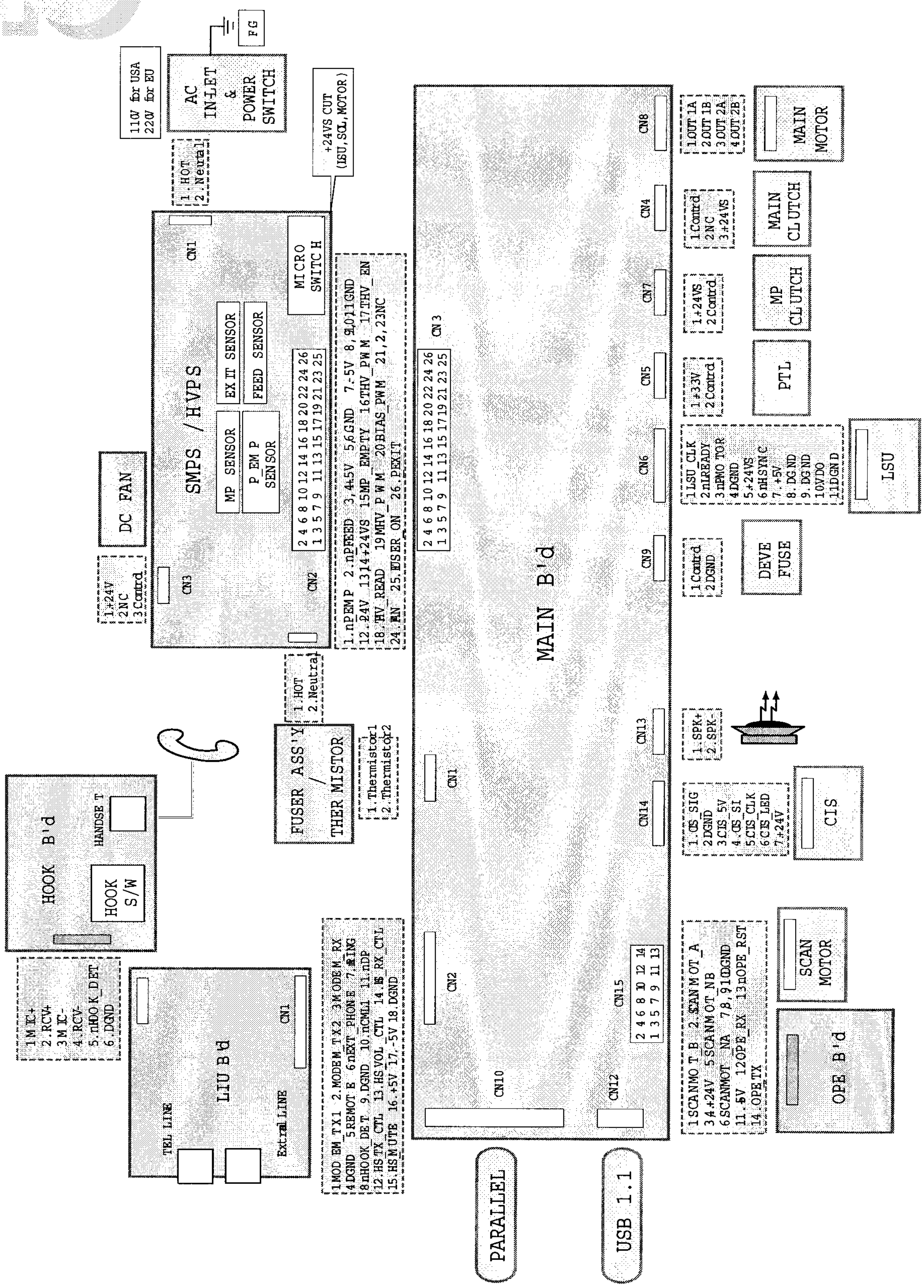
10. Connection Diagram


FG
AC INLET & POWER SWITCH
110V for USA
220V for EU
1.HOT
2.Neutral
+24VS CUT (LSU,SOL,MOTOR)
SMPS / HVPS
CN1
CN2
CN3
MICRO SWITCH
EXIT SENSOR
FEED SENSOR
MP SENSOR
P EMP SENSOR
2 4 6 8 10 12 14 16 18 20 22 24 26
1 3 5 7 9 11 13 15 17 19 21 23 25
1.nPEMP 2.nPFEED 3,4+5V 5,6GND 7.-5V 8,9,10,11GND
12.24V 13,14+24VS 15MP_EMPTY 16THV_PWM 17THV_EN
18.THV_READ 19MHV_PWM 20BIAS_PWM 21,2,23NC
24.FAN 25.FUSER_ON 26.PEXIT
DC FAN
1.+24V
2.NC
3.Control
FUSER ASS'Y / THERMISTOR
1.HOT
2.Neutral
1.Thermistor1
2.Thermistor2
HOOK B'd
HOOK S/W
HANDSET
1.MIC+
2.RCV+
3.MIC-
4.RCV-
5.nHOOK_DET
6.DGND
LIU B'd
CN1
TEL LINE
External LINE
1.MODEM_TX1 2.MODEM_TX2 3.MODEM_RX
4.DGND 5.REMOTE 6.nEXT_PHONE 7.nRING
8.nHOOK_DET 9.DGND 10.nCML 11.nDP
12.HS_TX_CTL 13.HS_VOL_CTL 14.HS_RX_CTL
15.HS_MUTE 16.+5V 17.-5V 18.DGND
MAIN B'd
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CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN12
CN13
CN14
CN15
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1 3 5 7 9 11 13
PARALLEL
USB 1.1
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2.OUT 1B
3.OUT 2A
4.OUT 2B
MAIN MOTOR
1.Control
2.NC
3.+24VS
MAIN CLUTCH
1.+24VS
2.Control
MP CLUTCH
1.+33V
2.Control
PTL
1.LSU_CLK
2.nLREADY
3.nPMOTOR
4.DGND
5.+24VS
6.nHSYNC
7.+5V
8.DGND
9.DGND
10.VDO
11.DGND
LSU
1.Control
2.DGND
DEVE FUSE
1.SPK+
2.SPK-
1.CIS_SIG
2.DGND
3.CIS_5V
4.CIS_SI
5.CIS_CLK
6.CIS_LED
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1.SCANMOT_B 2.SCANMOT_A
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SCAN MOTOR
OPE B'd

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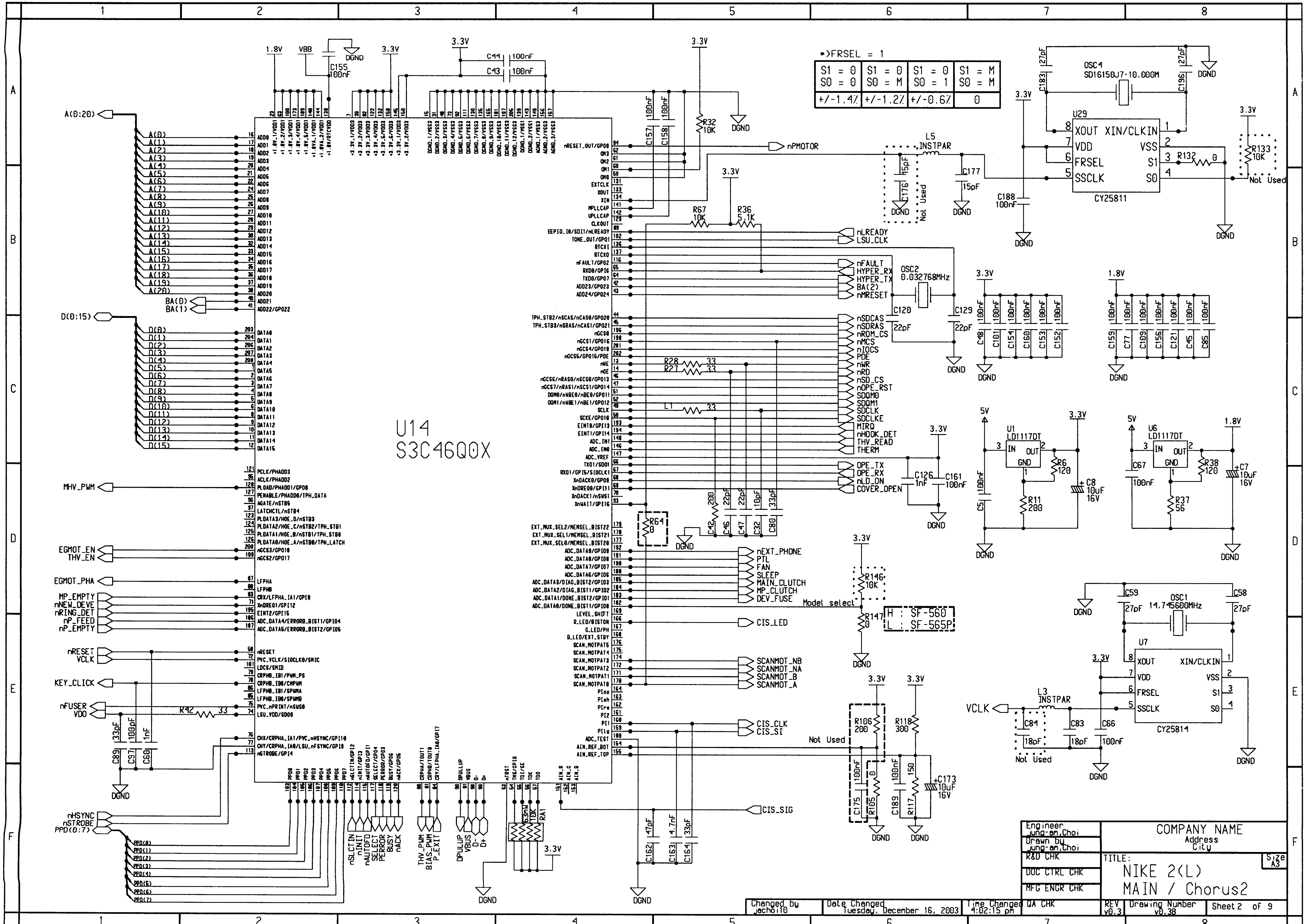
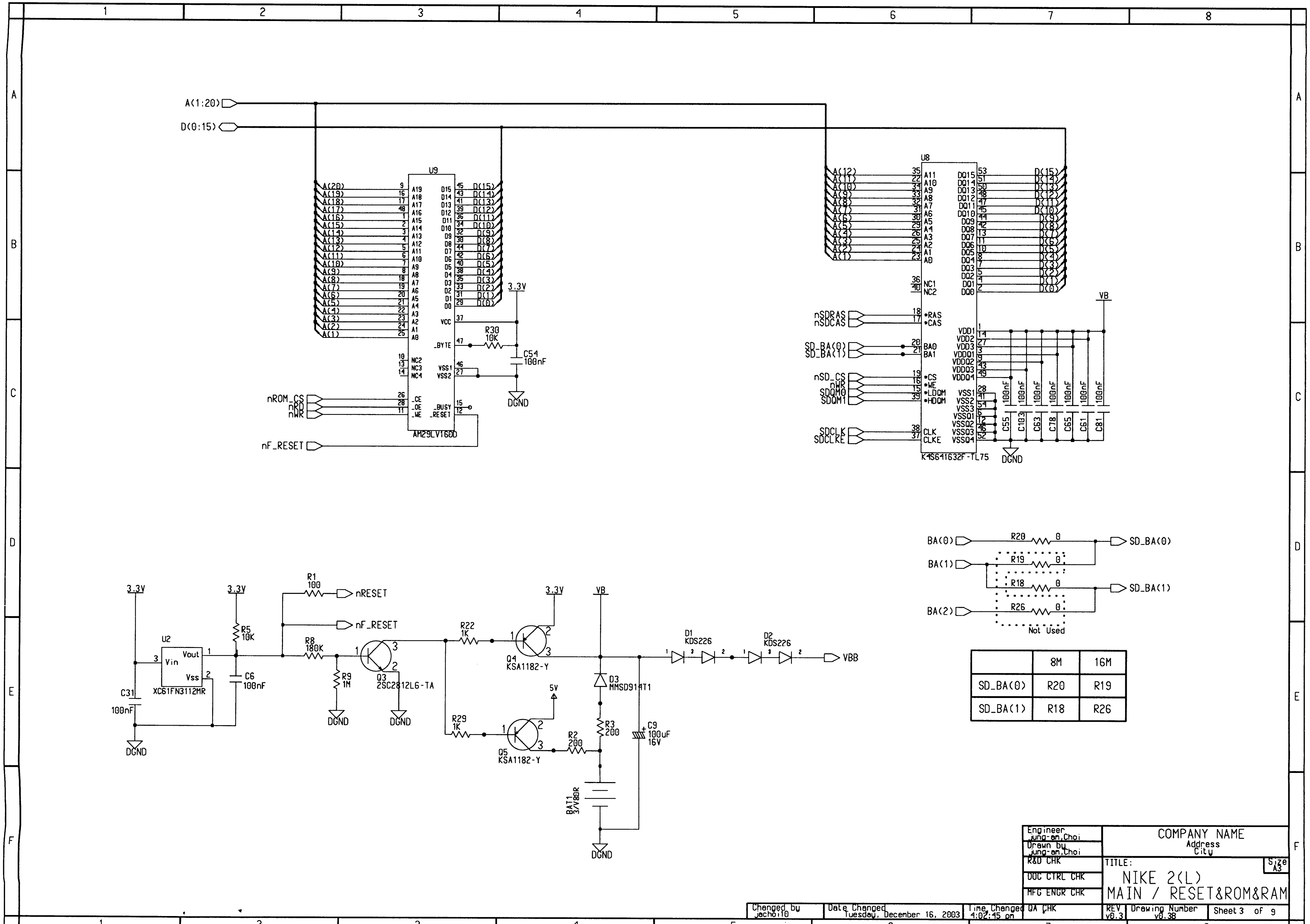

U14
S3C46Q0X
A(0:20)
D(0:15)
BA(0)
BA(1)
MHV_PWM
EGMOT_EN
THV_EN
EGMOT_PHA
MP_EMPTY
nNEW_DEVE
nRING_DET
nP_FEED
nP_EMPTY
nRESET
VCLK
KEY_CLICK
nFUSER
VDO
R42 33
C89 33pF
C97 100pF
C60 1nF
nHSYNC
nSTROBE
PPD(0:7)
nSLCTIN
nINIT
nAUTOFD
SELECT
PERROR
BUSY
nACK
THV_PWM
BIAS_PWM
P_EXIT
DPULLUP
VBUS
D-
D+
RA1 33MW 10K
C162 47pF
C163 4.7nF
C164 33pF
CIS_SIG
CIS_CLK
CIS_SI
SCANMOT_NB
SCANMOT_NA
SCANMOT_B
SCANMOT_A
CIS_LED
nEXT_PHONE
PTL
FAN
SLEEP
MAIN_CLUTCH
MP_CLUTCH
DEV_FUSE
Model select
R146 10K
R147 0
H : SF-560
L : SF-565P
R64 0
C42 200
C46 22pF
C47 22pF
C32 10pF
C80 33pF
OPE_TX
OPE_RX
nLD_ON
COVER_OPEN
C126 1nF
C161 100nF
nSDCAS
nSDRAS
nROM_CS
nMCS
nIOCS
PDE
nWR
nRD
nSD_CS
nOPE_RST
SDQM0
SDQM1
SDCLK
SDCLKE
MIRQ
nHOOK_DET
THV_READ
THERM
R28 33
R27 33
L1 33
nFAULT
HYPER_RX
HYPER_TX
BA(2)
nMRESET
OSC2 0.032768MHz
C120 22pF
C129 22pF
nLREADY
LSU_CLK
R67 10K
R36 5.1K
R32 10K
nPMOTOR
C157 100nF
C158 100nF
C44 100nF
C43 100nF
C155 100nF
1.8V
VBB
3.3V
5V
DGND
*)FRSEL = 1
S1 = 0 S0 = 0 +/-1.4%
S1 = 0 S0 = M +/-1.2%
S1 = 0 S0 = 1 +/-0.6%
S1 = M S0 = M 0
L5 INSTPAR
C176 15pF
Not Used
C177 15pF
C188 100nF
OSC4 SD1615BJ7-10.000M
C183 27pF
C196 27pF
U29
XOUT XIN/CLKIN
VDD VSS
FRSEL S1
SSCLK S0
CY25811
R132 0
R133 10K
Not Used
C48 C101 C154 C160 C153 C152 100nF
C159 C77 C109 C156 C121 C45 C85 100nF
U1 LD1117DT
IN OUT GND
R6 120
R11 200
C5 100nF
C8 10uF 16V
U6 LD1117DT
C67 100nF
R38 120
R37 56
C7 10uF 16V
OSC1 14.745600MHz
C59 27pF
C58 27pF
U7
CY25814
L3 INSTPAR
C84 18pF
Not Used
C83 18pF
C66 100nF
R106 200
Not Used
R118 300
C175 100nF
R105 0
C189 100nF
R117 150
C173 10uF 16V
Engineer jung-am,Choi
Drawn by jung-am,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK
COMPANY NAME
Address
City
TITLE:
NIKE 2(L)
MAIN / Chorus2
Size A3
REV v0.3
Drawing Number v0.3B
Sheet 2 of 9
Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:02:15 pm
1
2
3
4
5
6
7
8
A
B
C
D
E
F


A(1:20)
D(0:15)
U9
AM29LV160D
U8
K4S641632F-TL75
nROM_CS
nRD
nWR
nF_RESET
nSDRAS
nSDCAS
SD_BA(0)
SD_BA(1)
nSD_CS
nWR
SDQM0
SDQM1
SDCLK
SDCLKE
R30 10K
C54 100nF
3.3V
VB
DGND
C55 C103 C63 C78 C65 C61 C81 100nF
BA(0)
BA(1)
BA(2)
R20 0
R19 0
R18 0
R26 0
Not Used
U2
XC61FN3112MR
C31 100nF
R5 10K
C6 100nF
R1 100
nRESET
R8 180K
R9 1M
Q3 2SC2812L6-TA
R22 1K
R29 1K
Q4 KSA1182-Y
Q5 KSA1182-Y
5V
D3 MMSD914T1
R3 200
R2 200
BAT1 3/V80R
C9 100uF 16V
D1 KDS226
D2 KDS226
VBB

	8M	16M
SD_BA(0)	R20	R19
SD_BA(1)	R18	R26

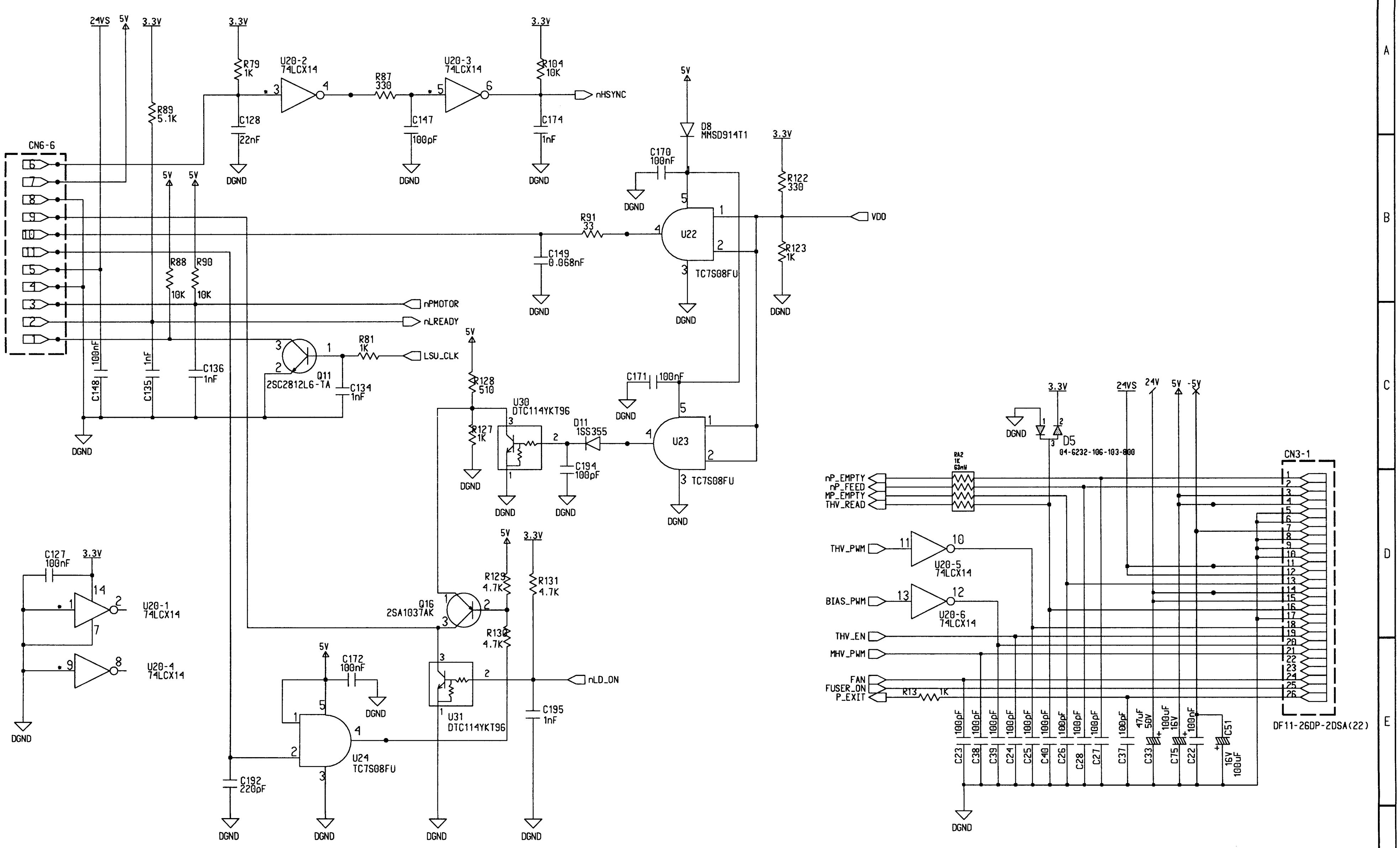
Engineer jung-an.Choi
Drawn by jung-an.Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

COMPANY NAME
Address
City

TITLE:
NIKE 2(L)
MAIN / RESET&ROM&RAM

Size A3

Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:02:45 pm
REV v0.3
Drawing Number v0.38
Sheet 3 of 9


CN6-6
24VS
5V
3.3V
R89 5.1K
R79 1K
C128 22nF
U20-2 74LCX14
R87 330
C147 100pF
U20-3 74LCX14
R104 10K
C174 1nF
nHSYNC
DGND
D8 MMSD914T1
C170 100nF
U22
TC7S08FU
R91 33
C149 0.068nF
R122 330
R123 1K
VDD
R88 10K
R90 10K
nPMOTOR
nLREADY
LSU_CLK
Q11 2SC2812L6-TA
R81 1K
C134 1nF
C148 100nF
C135 1nF
C136 1nF
R128 510
R127 1K
U30 DTC114YKT96
D11 1SS355
C194 100pF
C171 100nF
U23
TC7S08FU
C127 100nF
U20-1 74LCX14
U20-4 74LCX14
Q16 2SA1037AK
R129 4.7K
R130 4.7K
R131 4.7K
U31 DTC114YKT96
nLD_ON
C195 1nF
C172 100nF
U24 TC7S08FU
C192 220pF
D5 04-6232-106-103-800
RA2 1K 63mW
24V
-5V
CN3-1
nP_EMPTY
nP_FEED
MP_EMPTY
THV_READ
THV_PWM
U20-5 74LCX14
BIAS_PWM
U20-6 74LCX14
THV_EN
MHV_PWM
FAN
FUSER_ON
P_EXIT
R13 1K
C23 100pF
C38 100pF
C39 100pF
C24 100pF
C25 100pF
C40 100pF
C26 100pF
C28 100pF
C27 100pF
C37 100pF
C33 47uF 50V
C75 100uF 16V
C22 100nF
C51 16V 100uF
DF11-26DP-2DSA(22)

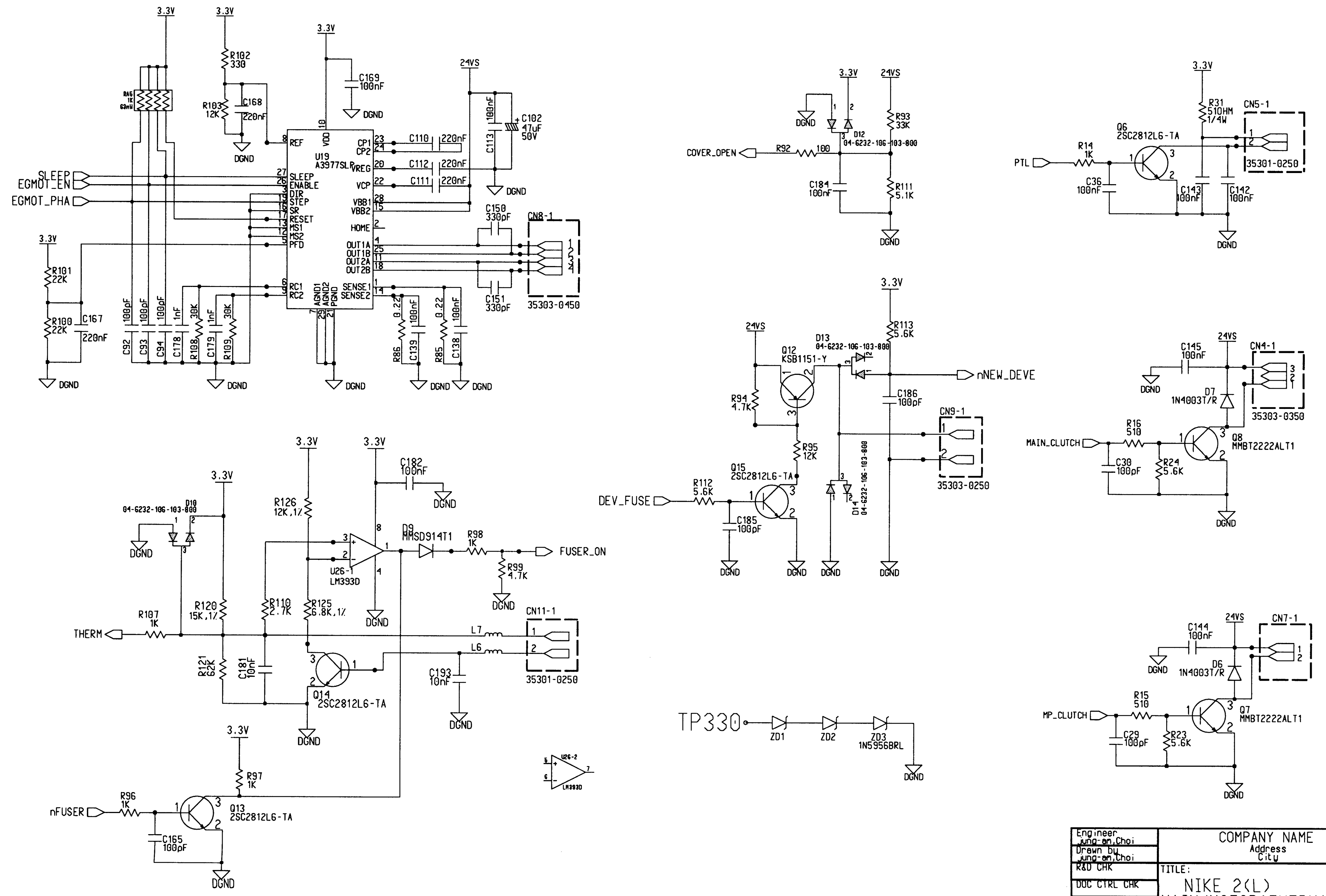
COMPANY NAME
Address
City

Engineer Jung-an,Choi
Drawn by Jung-an,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

TITLE:
NIKE 2(L)
MAIN / LSU&PWRCONN

Size A3

Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:03:06 pm
REV v0.3
Drawing Number v0.38
Sheet 4 of 9


3.3V
24VS
DGND
R102 330
R103 12K
C168 220nF
RA6 1K
C169 100nF
U19 A3977SLP
REF
VDD
CP1
CP2
VREG
VCP
VBB1
VBB2
HOME
OUT1A
OUT1B
OUT2A
OUT2B
SENSE1
SENSE2
AGND1
AGND2
PGND
RC1
RC2
SLEEP
ENABLE
DIR
STEP
SR
RESET
MS1
MS2
PFD
C110 220nF
C112 220nF
C111 220nF
C113 100nF
C102 47uF 50V
C150 330pF
C151 330pF
CN8-1
35303-0450
SLEEP
EGMOT_EN
EGMOT_PHA
R101 22K
R100 22K
C167 220nF
C92 100pF
C93 100pF
C94 100pF
C178 1nF
R108 30K
C179 1nF
R109 30K
R86 0.22
C139 100nF
R85 0.22
C138 100nF
COVER_OPEN
R92 100
D12 04-6232-106-103-800
R93 33K
R111 5.1K
C184 100nF
PTL
R14 1K
C36 100nF
Q6 2SC2812L6-TA
R31 51OHM 1/4W
CN5-1
35301-0250
C143 100nF
C142 100nF
Q12 KSB1151-Y
R94 4.7K
D13 04-6232-106-103-800
R113 5.6K
nNEW_DEVE
C186 100pF
CN9-1
35303-0250
R95 12K
Q15 2SC2812L6-TA
DEV_FUSE
R112 5.6K
C185 100pF
D14 04-6232-106-103-800
C145 100nF
CN4-1
35303-0350
D7 1N4003T/R
MAIN_CLUTCH
R16 510
C30 100pF
R24 5.6K
Q8 MMBT2222ALT1
C144 100nF
CN7-1
D6 1N4003T/R
MP_CLUTCH
R15 510
C29 100pF
R23 5.6K
Q7 MMBT2222ALT1
D10 04-6232-106-103-800
R126 12K,1%
C182 100nF
U26-1 LM393D
D9 MMSD914T1
R98 1K
R99 4.7K
FUSER_ON
THERM
R107 1K
R120 15K,1%
R110 2.7K
R125 6.8K,1%
L7
L6
CN11-1
35301-0250
R121 62K
C181 10nF
Q14 2SC2812L6-TA
C193 10nF
TP330
ZD1
ZD2
ZD3 1N5956BRL
U26-2 LM393D
R97 1K
nFUSER
R96 1K
Q13 2SC2812L6-TA
C165 100pF
1
2
3
4
5
6
7
8
A
B
C
D
E
F

Engineer jung-an,Choi
Drawn by jung-an,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

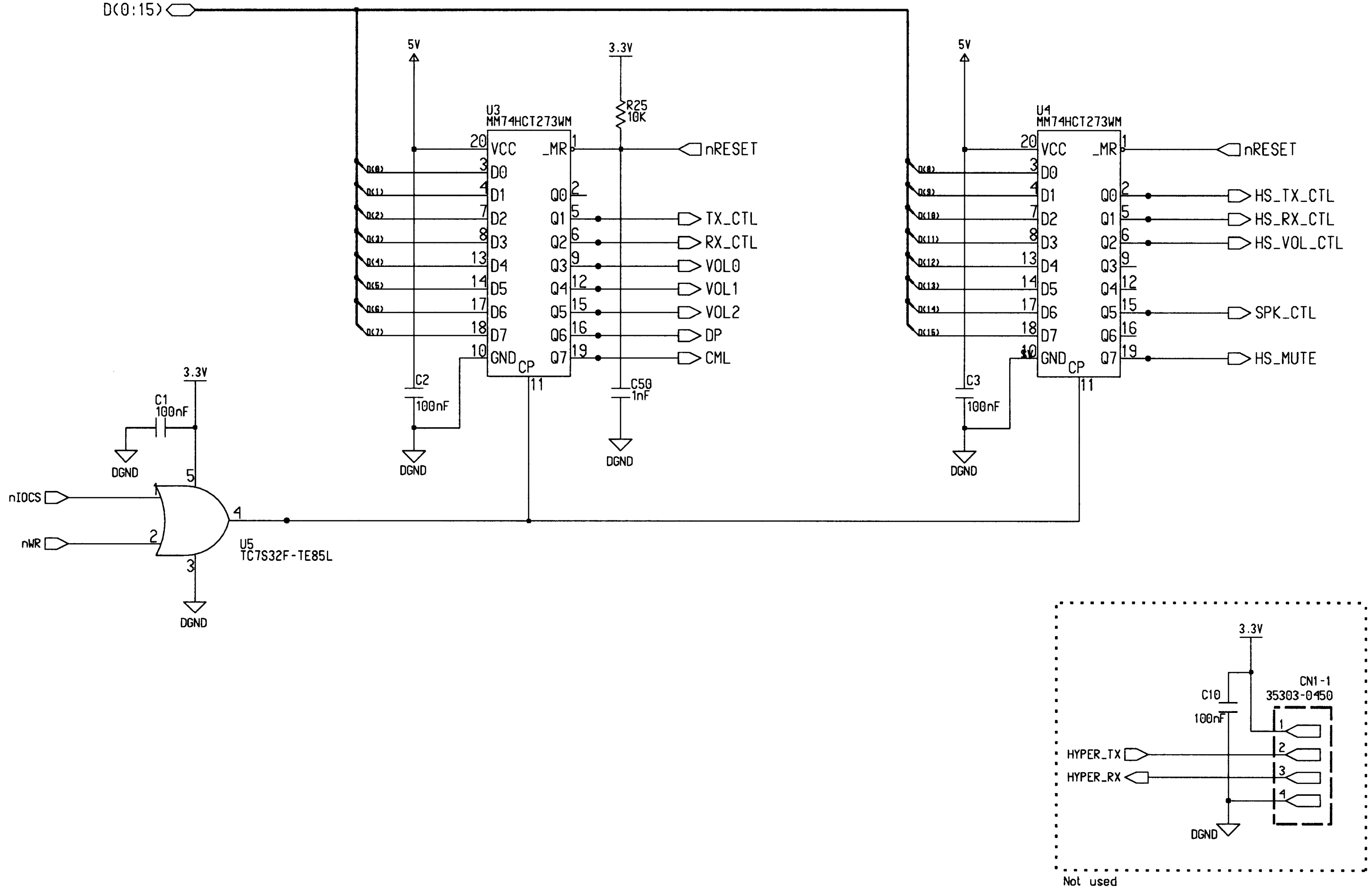
COMPANY NAME
Address
City

TITLE:
NIKE 2(L)
MAIN/MOTOR&THERM&ENG

Size A3

REV v0.3
Drawing Number v0.38
Sheet 5 of 9

Changed by jechoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:03:23 pm


D(0:15)
5V
3.3V
U3
MM74HCT273WM
R25
10K
VCC
_MR
D0
D1
D2
D3
D4
D5
D6
D7
GND
CP
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
nRESET
TX_CTL
RX_CTL
VOL0
VOL1
VOL2
DP
CML
C2
100nF
C50
1nF
DGND
U4
MM74HCT273WM
HS_TX_CTL
HS_RX_CTL
HS_VOL_CTL
SPK_CTL
HS_MUTE
C3
100nF
C1
100nF
nIOCS
nWR
U5
TC7S32F-TE85L
CN1-1
35303-0450
C10
100nF
HYPER_TX
HYPER_RX
Not used

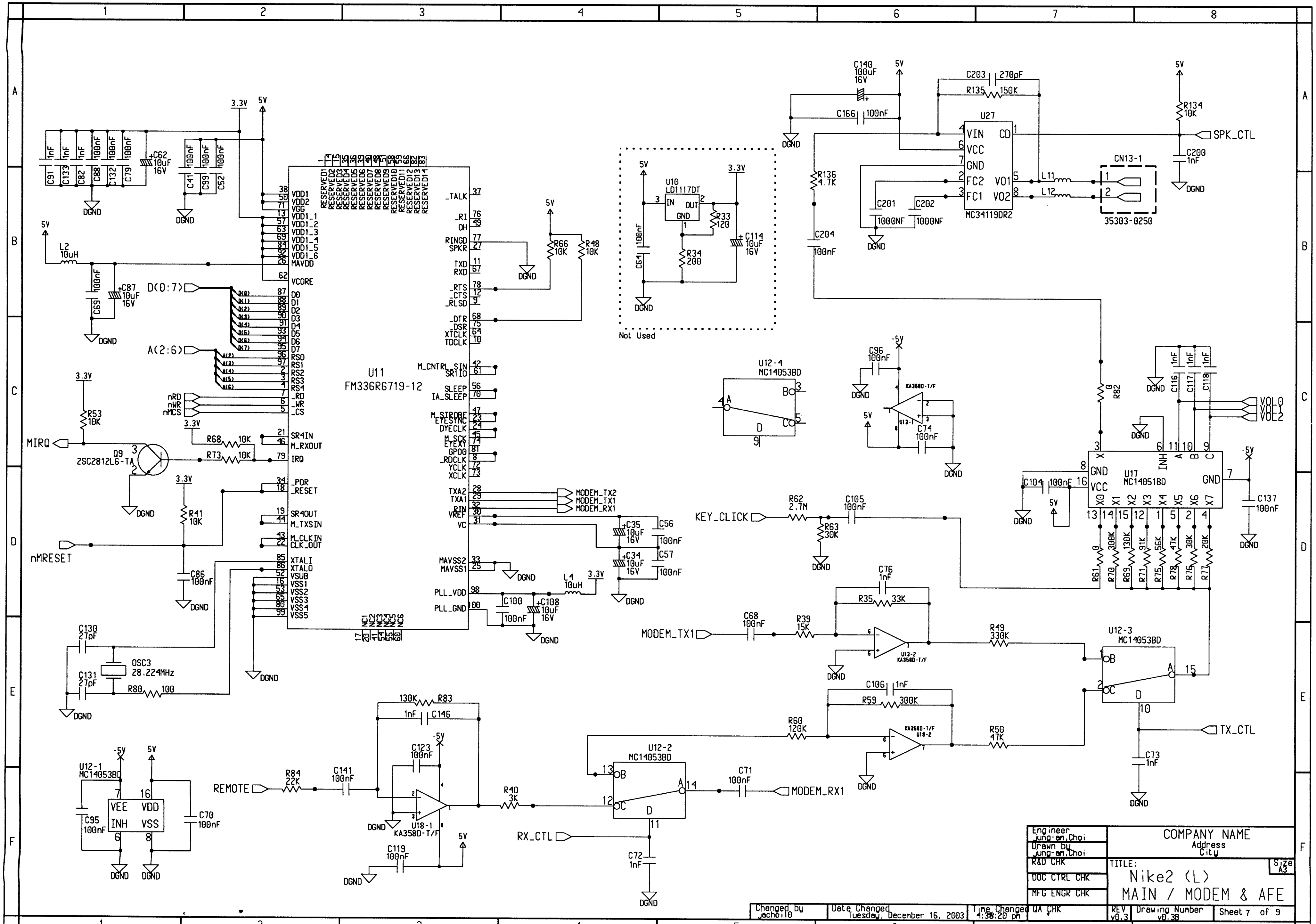
Engineer
jung-am,Choi
Drawn by
jung-am,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

COMPANY NAME
Address
City

TITLE:
NIKE 2(L)
MAIN / EXT GPIO

Size
A3

Changed by	Date Changed	Time Changed	REV	Drawing Number	Sheet 6 of 9
jachoi10	Tuesday, December 16, 2003	3:38:35 pm	v0.3	v0.3B	


U11
FM336R6719-12
U27
MC34119DR2
CN13-1
35303-0250
U10
LD1117DT
Not Used
U12-4
MC14053BD
U17
MC14051BD
U12-3
MC14053BD
U12-2
MC14053BD
U12-1
MC14053BD
U13-1
U13-2
KA358D-T/F
U18-1
KA358D-T/F
U18-2
Q9
2SC2812L6-TA
OSC3
28.224MHz
SPK_CTL
VOL0
VOL1
VOL2
KEY_CLICK
MODEM_TX1
MODEM_RX1
MODEM_TX2
TX_CTL
RX_CTL
REMOTE
MIRQ
nMRESET
D(0:7)
A(2:6)
nRD
nWR
nMCS
DGND
5V
3.3V
-5V

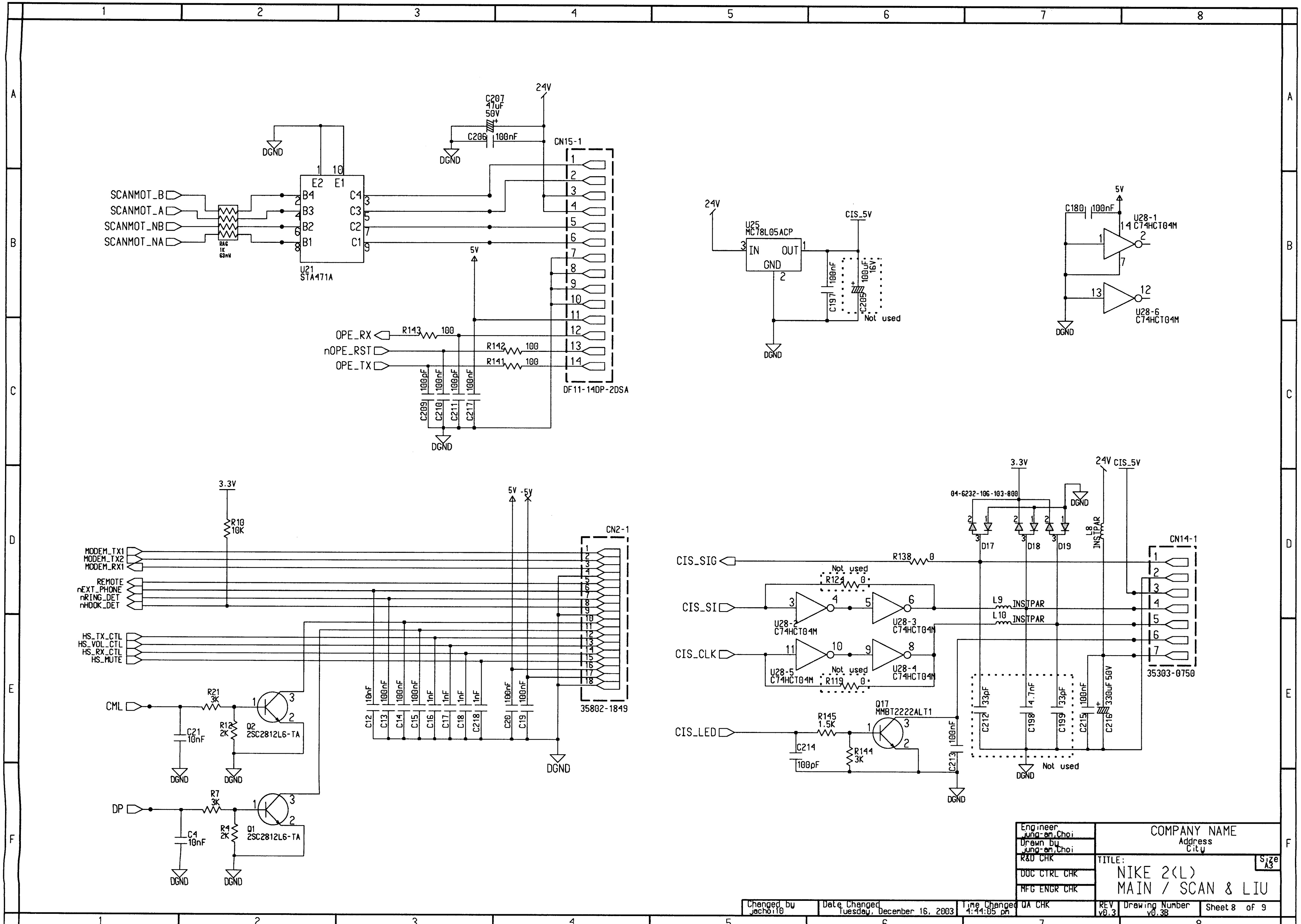
Engineer
jung-am,Choi
Drawn by
jung-am,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

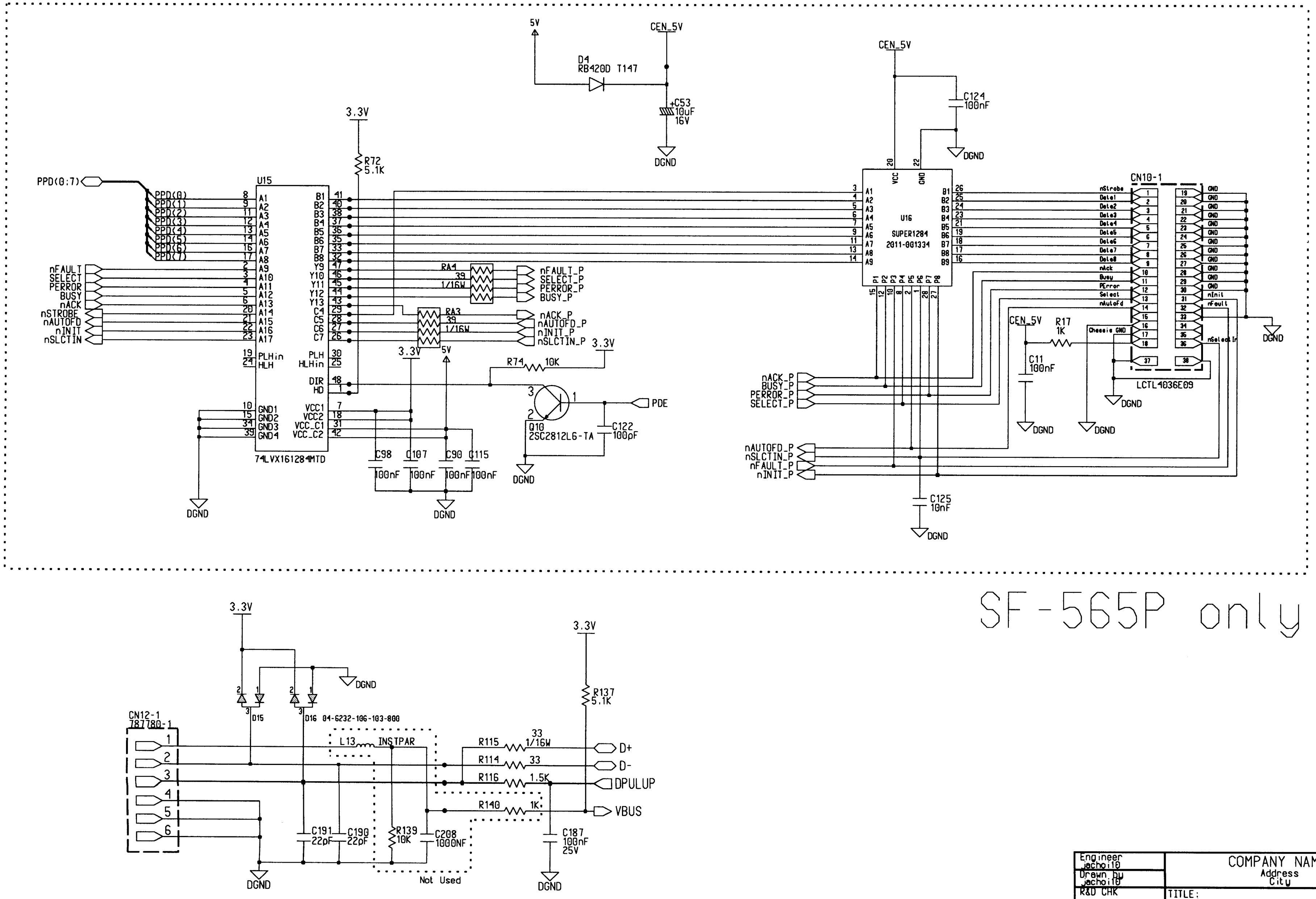
COMPANY NAME
Address
City

TITLE:
Nike2 (L)
MAIN / MODEM & AFE

Size A3

Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:38:20 pm
REV v0.3
Drawing Number v0.3B
Sheet 7 of 9


SCANMOT_B
SCANMOT_A
SCANMOT_NB
SCANMOT_NA
RA6 1K 63mW
U21 STA471A
B4 B3 B2 B1 E2 E1 C4 C3 C2 C1
DGND
C207 47uF 50V
C206 100nF
24V
CN15-1
DF11-14DP-2DSA
5V
OPE_RX
nOPE_RST
OPE_TX
R143 100
R142 100
R141 100
C209 100pF
C210 100nF
C211 100pF
C217 100nF
U25 MC78L05ACP
IN OUT GND
CIS_5V
C197 100nF
C205 100uF 16V
Not used
C180 100nF
U28-1 C74HCT04M
U28-6 C74HCT04M
3.3V
R10 10K
MODEM_TX1
MODEM_TX2
MODEM_RX1
REMOTE
nEXT_PHONE
nRING_DET
nHOOK_DET
HS_TX_CTL
HS_VOL_CTL
HS_RX_CTL
HS_MUTE
CML
DP
R21 3K
R12 2K
Q2 2SC2812L6-TA
C21 10nF
R7 3K
R4 2K
Q1 2SC2812L6-TA
C4 10nF
C12 10nF
C13 100nF
C14 100nF
C15 100nF
C16 1nF
C17 1nF
C18 1nF
C218 1nF
C20 100nF
C19 100nF
5V -5V
CN2-1
35802-1849
CIS_SIG
CIS_SI
CIS_CLK
CIS_LED
R138 0
R124 0
R119 0
U28-2 C74HCT04M
U28-3 C74HCT04M
U28-4 C74HCT04M
U28-5 C74HCT04M
04-6232-106-103-800
D17 D18 D19
L8 INSTPAR
L9 INSTPAR
L10 INSTPAR
24V CIS_5V
CN14-1
35303-0750
R145 1.5K
R144 3K
C214 100pF
Q17 MMBT2222ALT1
C213 100nF
C212 33pF
C198 4.7nF
C199 33pF
C215 100nF
C216 330uF 50V
Engineer jung-an,Choi
Drawn by jung-an,Choi
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK
COMPANY NAME
Address
City
TITLE:
NIKE 2(L)
MAIN / SCAN & LIU
Size A3
Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 4:44:05 pm
REV v0.3
Drawing Number v0.3B
Sheet 8 of 9


5V
CEN_5V
D4
RB420D T147
+C53
10uF
16V
DGND
CEN_5V
C124
100nF
DGND
3.3V
R72
5.1K
PPD(0:7)
PPD(0)
PPD(1)
PPD(2)
PPD(3)
PPD(4)
PPD(5)
PPD(6)
PPD(7)
U15
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
B1 B2 B3 B4 B5 B6 B7 B8 Y9 Y10 Y11 Y12 Y13 C4 C5 C6 C7
PLHin
HLH
PLH
HLHin
DIR
HD
GND1 GND2 GND3 GND4
VCC1 VCC2 VCC_C1 VCC_C2
74LVX161284MTD
nFAULT
SELECT
PERROR
BUSY
nACK
nSTROBE
nAUTOFD
nINIT
nSLCTIN
RA4
39
1/16W
nFAULT_P
SELECT_P
PERROR_P
BUSY_P
RA3
39
1/16W
nACK_P
nAUTOFD_P
nINIT_P
nSLCTIN_P
3.3V
5V
3.3V
R74
10K
Q10
2SC2812L6-TA
PDE
C122
100pF
C98
100nF
C107
100nF
C90
100nF
C115
100nF
DGND
U16
SUPER1284
2011-001334
VCC
GND
A1 A2 A3 A4 A5 A6 A7 A8 A9
B1 B2 B3 B4 B5 B6 B7 B8 B9
P1 P2 P3 P4 P5 P6 P7 P8
CN10-1
nStrobe
Data1
Data2
Data3
Data4
Data5
Data6
Data7
Data8
nAck
Busy
PError
Select
nAutoFd
Chassis GND
GND
nInit
nFault
nSelectIn
LCTL4036E09
CEN_5V
R17
1K
C11
100nF
DGND
nACK_P
BUSY_P
PERROR_P
SELECT_P
nAUTOFD_P
nSLCTIN_P
nFAULT_P
nINIT_P
C125
10nF
DGND
SF-565P only
3.3V
DGND
D15
D16 04-6232-106-103-800
CN12-1
787780-1
L13
INSTPAR
R115
33
1/16W
R114
33
R116
1.5K
R140
1K
R137
5.1K
D+
D-
DPULUP
VBUS
C191
22pF
C190
22pF
R139
10K
C208
1000NF
Not Used
C187
100nF
25V
DGND

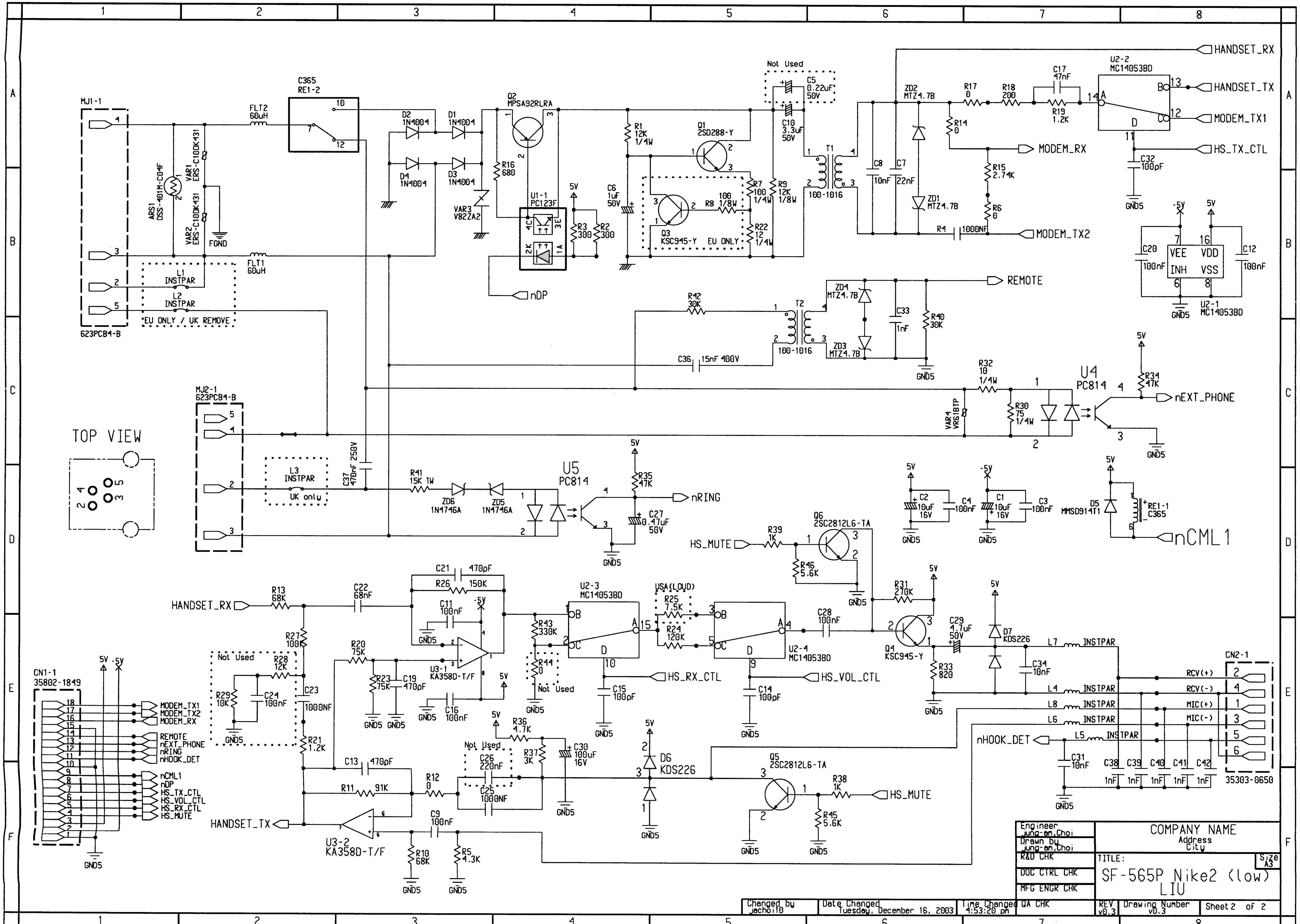
Engineer jachoi10
Drawn by jachoi10
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK

COMPANY NAME
Address
City

TITLE:
NIKE 2(L)
MAIN / PC INTERFACE

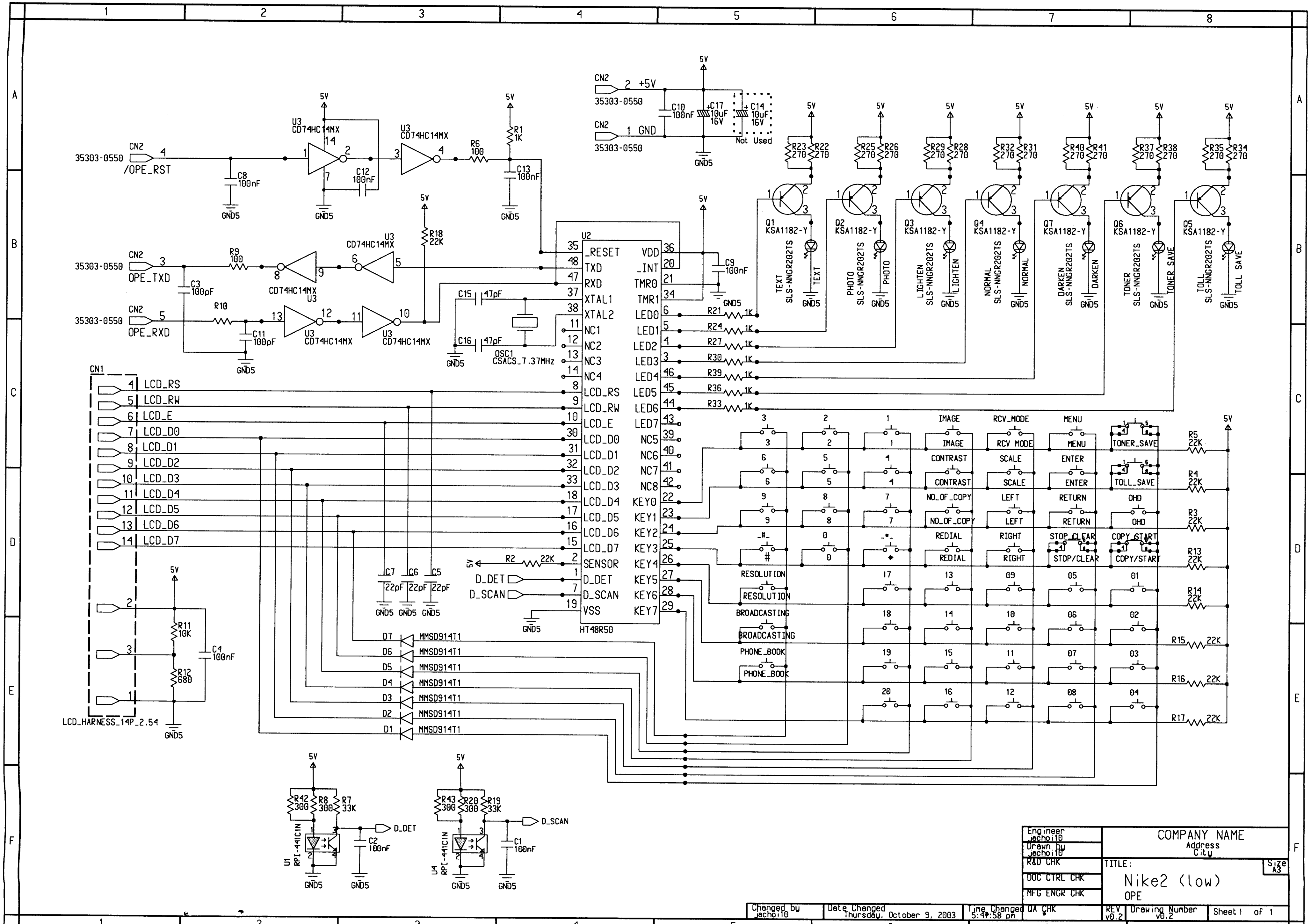
Size A3

Changed by jachoi10
Date Changed Tuesday, December 16, 2003
Time Changed 3:34:42 pm
REV v0.3
Drawing Number v0.3B
Sheet 9 of 9


MJ1-1
623PCB4-B
ARS1
DSS-401M-C04F
VAR1
ERS-C10DK431
VAR2
ERS-C10DK431
FGND
L1
INSTPAR
L2
INSTPAR
EU ONLY / UK REMOVE
FLT2
60uH
FLT1
60uH
C365
RE1-2
D1 1N4004
D2 1N4004
D3 1N4004
D4 1N4004
VAR3
V82ZA2
Q2
MPSA92RLRA
R16
680
U1-1
PC123F
nDP
R3 300
R2 300
5V
C6
1uF
50V
R1
12K
1/4W
Q1
2SD288-Y
Q3
KSC945-Y
EU ONLY
R8 100 1/8W
R7 100 1/4W
R9 12K 1/8W
R22 12 1/4W
Not Used
C5
0.22uF
50V
C10
3.3uF
50V
T1
100-1016
C8 10nF
C7 22nF
ZD2
MTZ4.7B
ZD1
MTZ4.7B
R17 0
R18 200
C17 47nF
R19 1.2K
R14 0
R15 2.74K
R6 0
R4 1000NF
MODEM_RX
MODEM_TX2
U2-2
MC14053BD
HANDSET_RX
HANDSET_TX
MODEM_TX1
HS_TX_CTL
C32
100pF
GND5
U2-1
MC14053BD
VEE VDD INH VSS
C20 100nF
C12 100nF
-5V
R42 30K
T2
100-1016
ZD4 MTZ4.7B
ZD3 MTZ4.7B
C33 1nF
R40 30K
REMOTE
C36 15nF 400V
R32 10 1/4W
VAR4
VR61BTP
R30 75 1/4W
U4
PC814
R34 47K
nEXT_PHONE
TOP VIEW
MJ2-1
623PCB4-B
L3
INSTPAR
UK only
C37
470nF 250V
R41 15K 1W
ZD6 1N4746A
ZD5 1N4746A
U5
PC814
R35 47K
nRING
C27 0.47uF 50V
C2 10uF 16V
C4 100nF
C1 10uF 16V
C3 100nF
D5 MMSD914T1
RE1-1 C365
nCML1
HS_MUTE
R39 1K
Q6 2SC2812L6-TA
R46 5.6K
R13 68K
C22 68nF
C21 470pF
R26 150K
C11 100nF
U3-1
KA358D-T/F
R43 330K
R44 0
Not Used
U2-3
MC14053BD
USA(LOUD)
R25 7.5K
R24 120K
U2-4
MC14053BD
HS_RX_CTL
HS_VOL_CTL
C15 100pF
C14 100pF
C28 100nF
R31 270K
Q4 KSC945-Y
C29 4.7uF 50V
R33 820
D7 KDS226
C34 10nF
L7 INSTPAR
L4 INSTPAR
L8 INSTPAR
L6 INSTPAR
L5 INSTPAR
CN2-1
RCV(+)
RCV(-)
MIC(+)
MIC(-)
nHOOK_DET
C31 10nF
C38 C39 C40 C41 C42
1nF
35303-0650
CN1-1
35802-1849
MODEM_TX1
MODEM_TX2
MODEM_RX
REMOTE
nEXT_PHONE
nRING
nHOOK_DET
nCML1
nDP
HS_TX_CTL
HS_VOL_CTL
HS_RX_CTL
HS_MUTE
R29 10K
R28 12K
C24 100nF
R27 100K
C23 1000NF
R21 1.2K
R20 75K
R23 75K
C19 470pF
C16 100nF
C13 470pF
R11 91K
R12 0
C26 220nF
C25 1000NF
R36 4.7K
R37 3K
C30 100uF 16V
D6 KDS226
Q5 2SC2812L6-TA
R38 1K
R45 5.6K
U3-2
KA358D-T/F
C9 100nF
R10 68K
R5 4.3K
HANDSET_TX

Engineer jung-am,Choi	COMPANY NAME Address City	
Drawn by jung-am,Choi		
R&D CHK	TITLE:	Size A3
DOC CTRL CHK	SF-565P Nike2 (low) LIU	
MFG ENGR CHK		
QA CHK	REV v0.3	Drawing Number v0.3

Changed by	Date Changed	Time Changed	
jachoi10	Tuesday, December 16, 2003	4:53:20 pm	Sheet 2 of 2


1
2
3
4
5
6
7
8
A
B
C
D
E
F
CN2
35303-0550
/OPE_RST
OPE_TXD
OPE_RXD
U3
CD74HC14MX
R6
100
R1
1K
C8
100nF
C12
100nF
C13
100nF
R9
100
R10
C3
100pF
C11
100pF
R18
22K
C15
47pF
C16
47pF
OSC1
CSACS_7.37MHz
2 +5V
1 GND
C10
100nF
C17
10uF
16V
C14
10uF
16V
Not Used
C9
100nF
U2
HT48R50
_RESET
TXD
RXD
XTAL1
XTAL2
NC1
NC2
NC3
NC4
LCD_RS
LCD_RW
LCD_E
LCD_D0
LCD_D1
LCD_D2
LCD_D3
LCD_D4
LCD_D5
LCD_D6
LCD_D7
SENSOR
D_DET
D_SCAN
VSS
VDD
_INT
TMR0
TMR1
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
NC5
NC6
NC7
NC8
KEY0
KEY1
KEY2
KEY3
KEY4
KEY5
KEY6
KEY7
R21 1K
R24 1K
R27 1K
R30 1K
R39 1K
R36 1K
R33 1K
R2 22K
Q1 KSA1182-Y
Q2 KSA1182-Y
Q3 KSA1182-Y
Q4 KSA1182-Y
Q7 KSA1182-Y
Q6 KSA1182-Y
Q5 KSA1182-Y
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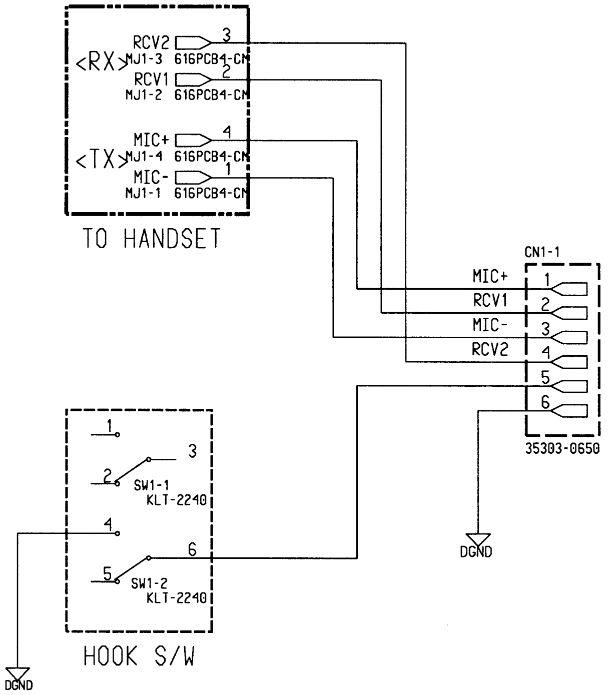
R29 270
R28 270
R32 270
R31 270
R40 270
R41 270
R37 270
R38 270
R35 270
R34 270
SLS-NNGR202TS
TEXT
PHOTO
LIGHTEN
NORMAL
DARKEN
TONER
TONER SAVE
TOLL
TOLL SAVE
5V
GND5
CN1
LCD_HARNESS_14P_2.54
R11
10K
R12
680
C4
100nF
C7
C6
C5
22pF
D1
D2
D3
D4
D5
D6
D7
MMSD914T1
IMAGE
CONTRAST
NO_OF_COPY
REDIAL
RCV_MODE
RCV MODE
SCALE
LEFT
RIGHT
MENU
ENTER
RETURN
STOP_CLEAR
STOP/CLEAR
TONER_SAVE
TOLL_SAVE
OHD
COPY_START
COPY/START
RESOLUTION
BROADCASTING
PHONE_BOOK
R5 22K
R4 22K
R3 22K
R13 22K
R14 22K
R15 22K
R16 22K
R17 22K
U1
U4
RPI-441C1N
R42 300
R8 300
R7 33K
R43 300
R20 300
R19 33K
C2 100nF
C1 100nF
D_DET
D_SCAN
Engineer jachoi10
Drawn by jachoi10
R&D CHK
DOC CTRL CHK
MFG ENGR CHK
QA CHK
COMPANY NAME
Address
City
TITLE:
Nike2 (low)
OPE
Size A3
REV v0.2
Drawing Number v0.2
Sheet 1 of 1
Changed by jachoi10
Date Changed Thursday, October 9, 2003
Time Changed 5:41:58 pm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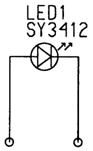
<RX>
MJ1-3 616PCB4-CN
3
RCV1
MJ1-2 616PCB4-CN
2
MIC+
<TX>
MJ1-4 616PCB4-CN
4
MIC-
MJ1-1 616PCB4-CN
1
TO HANDSET
CN1-1
MIC+
RCV1
MIC-
RCV2
1
2
3
4
5
6
35303-0650
DGND
1
2
3
SW1-1
KLT-2240
4
5
6
SW1-2
KLT-2240
HOOK S/W
DGND

Normal : 4 - 6 (OFF_HOOK)
Push : 5 - 6 (ON_HOOK)

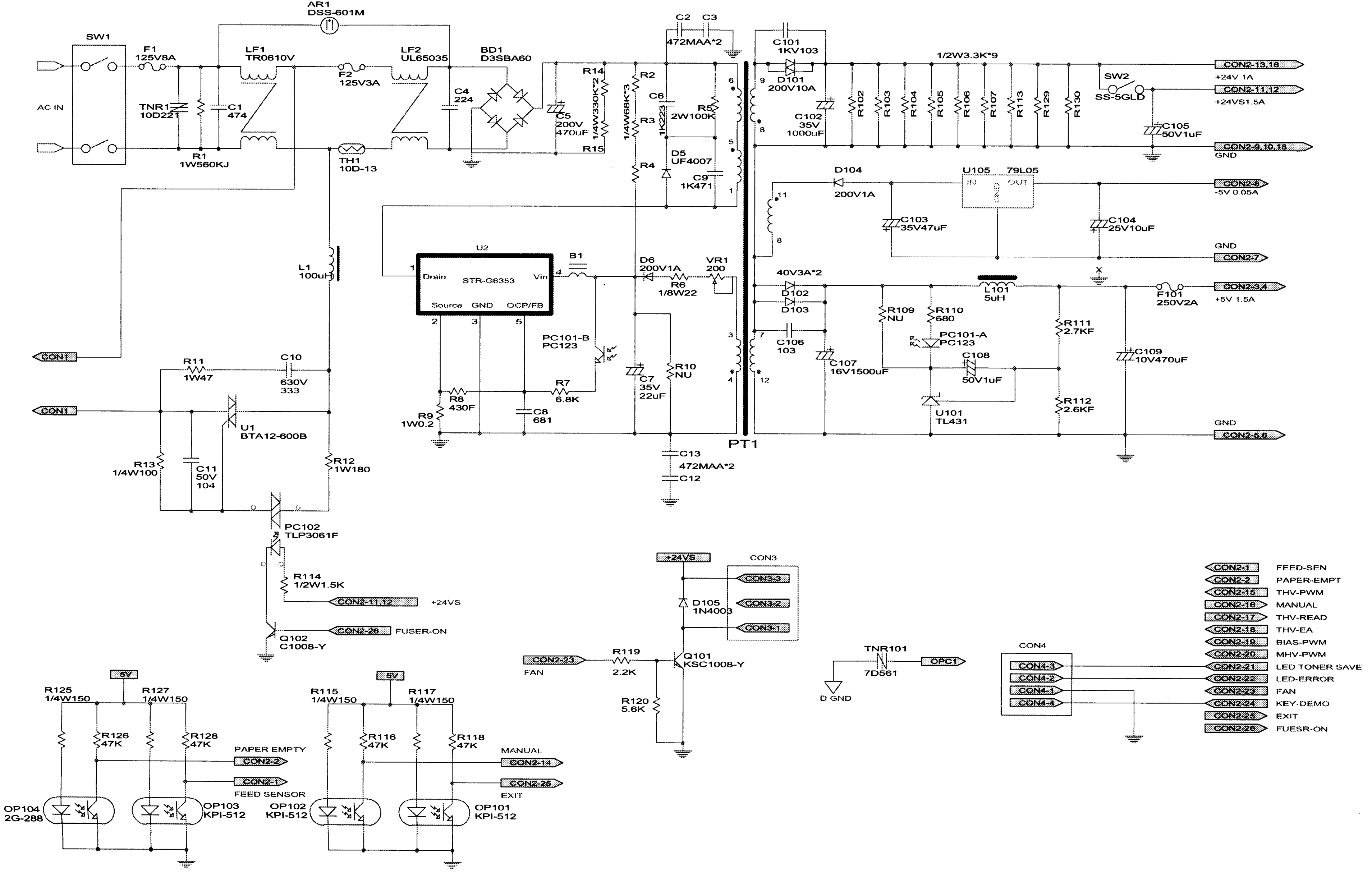
Engineer jechoi10	COMPANY NAME Address City				
Drawn by jechoi10					
R&D CHK	TITLE:				Size A3
DOC CTRL CHK	NIKE2(L)				
MFG ENGR CHK	HOOK / HANDSET M/J				
Changed by jechoi10	Date Changed Monday, October 6, 2003	Time Changed 1:38:26 pm	QA CHK	REV v0.2	Drawing Number / Sheet 1 of 1



Engineer jachoi10	COMPANY NAME Address City
Drawn by jachoi10	
R&D CHK	TITLE
DOC CTRL CHK	PTL_V1.1
MFG CTRL CHK	Size: A4
QA CHK	REV

Changed by	Date Changed	Time	Drawing Number	Sheet of
jachoi10	Monday, January 26, 2004	5:01:54 pm		

NIKE2L - V1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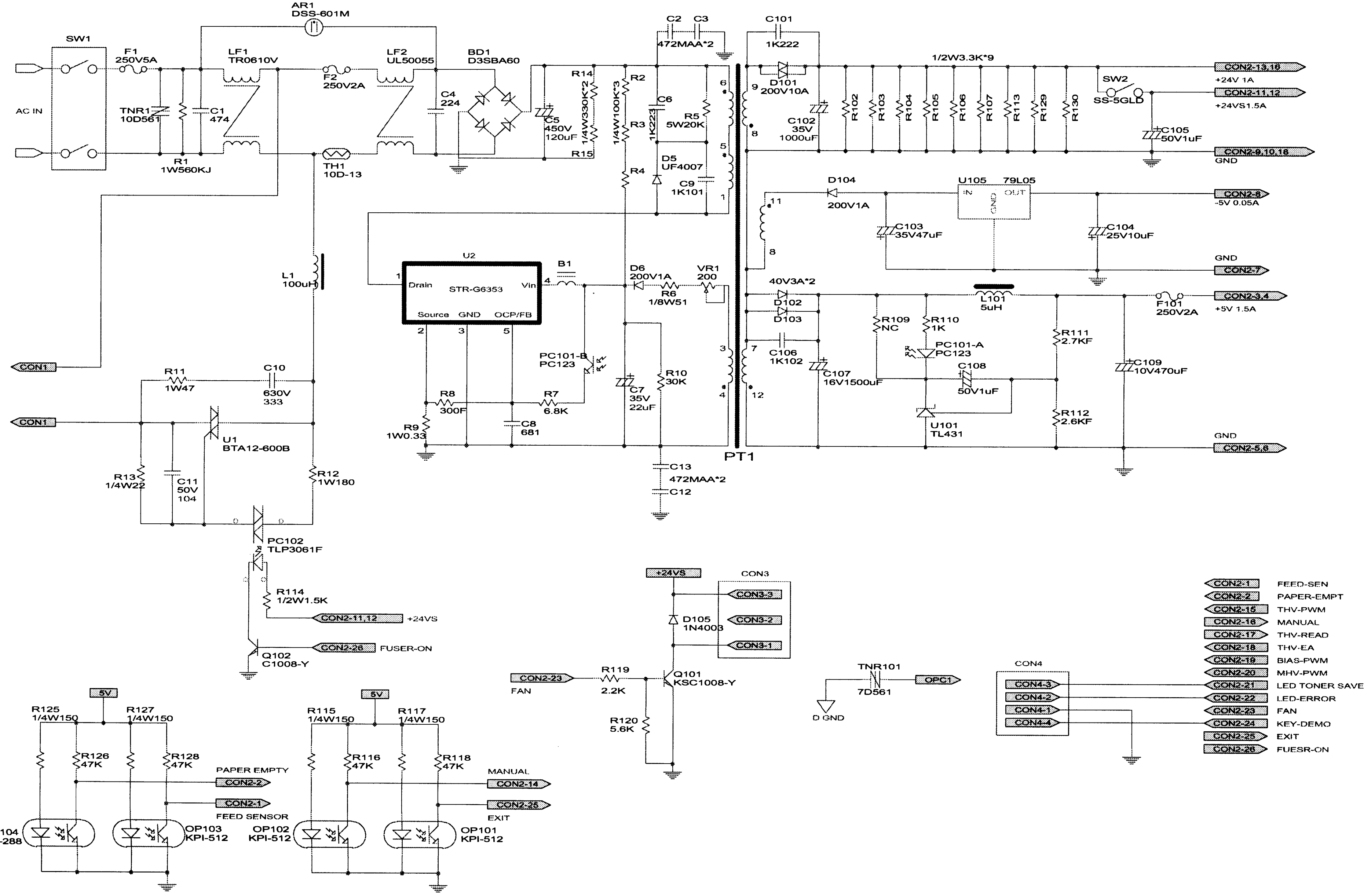
F1
125V8A
TNR1
10D221
R1
1W560KJ
C1
474
LF1
TR0610V
AR1
DSS-601M
F2
125V3A
LF2
UL65035
TH1
10D-13
C4
224
BD1
D3SBA60
C5
200V
470uF
R14
1/4W330K*2
R15
R2
R3
R4
1/4W68K*3
C6
1K223
R5
2W100K
D5
UF4007
C9
1K471
C2
C3
472MAA*2
PT1
U2
STR-G6353
Drain
Vin
Source
GND
OCP/FB
B1
D6
200V1A
R6
1/8W22
VR1
200
PC101-B
PC123
R7
6.8K
R8
430F
R9
1W0.2
C8
681
C7
35V
22uF
R10
NU
C13
472MAA*2
C12
L1
100uH
CON1
CON1
R11
1W47
C10
630V
333
U1
BTA12-600B
R13
1/4W100
C11
50V
104
R12
1W180
PC102
TLP3061F
R114
1/2W1.5K
CON2-11,12
+24VS
Q102
C1008-Y
CON2-26
FUSER-ON
C101
1KV103
D101
200V10A
C102
35V
1000uF
1/2W3.3K*9
R102
R103
R104
R105
R106
R107
R113
R129
R130
SW2
SS-5GLD
C105
50V1uF
CON2-13,16
+24V 1A
CON2-11,12
+24VS1.5A
CON2-9,10,18
GND
D104
200V1A
U105
79L05
IN
GND
OUT
C103
35V47uF
C104
25V10uF
CON2-8
-5V 0.05A
GND
CON2-7
40V3A*2
D102
D103
C106
103
C107
16V1500uF
R109
NU
R110
680
PC101-A
PC123
C108
50V1uF
U101
TL431
L101
5uH
R111
2.7KF
R112
2.6KF
C109
10V470uF
F101
250V2A
CON2-3,4
+5V 1.5A
GND
CON2-5,6
+24VS
CON3
CON3-3
CON3-2
CON3-1
D105
1N4003
Q101
KSC1008-Y
CON2-23
FAN
R119
2.2K
R120
5.6K
TNR101
7D561
OPC1
D GND
CON4
CON4-3
CON4-2
CON4-1
CON4-4
CON2-1
FEED-SEN
CON2-2
PAPER-EMPT
CON2-15
THV-PWM
CON2-16
MANUAL
CON2-17
THV-READ
CON2-18
THV-EA
CON2-19
BIAS-PWM
CON2-20
MHV-PWM
CON2-21
LED TONER SAVE
CON2-22
LED-ERROR
CON2-23
FAN
CON2-24
KEY-DEMO
CON2-25
EXIT
CON2-26
FUESR-ON
5V
R125
1/4W150
R126
47K
R127
1/4W150
R128
47K
PAPER EMPTY
CON2-2
CON2-1
FEED SENSOR
OP104
2G-288
OP103
KPI-512
5V
R115
1/4W150
R116
47K
R117
1/4W150
R118
47K
MANUAL
CON2-14
CON2-25
EXIT
OP102
KPI-512
OP101
KPI-512

NIKE2L - V2C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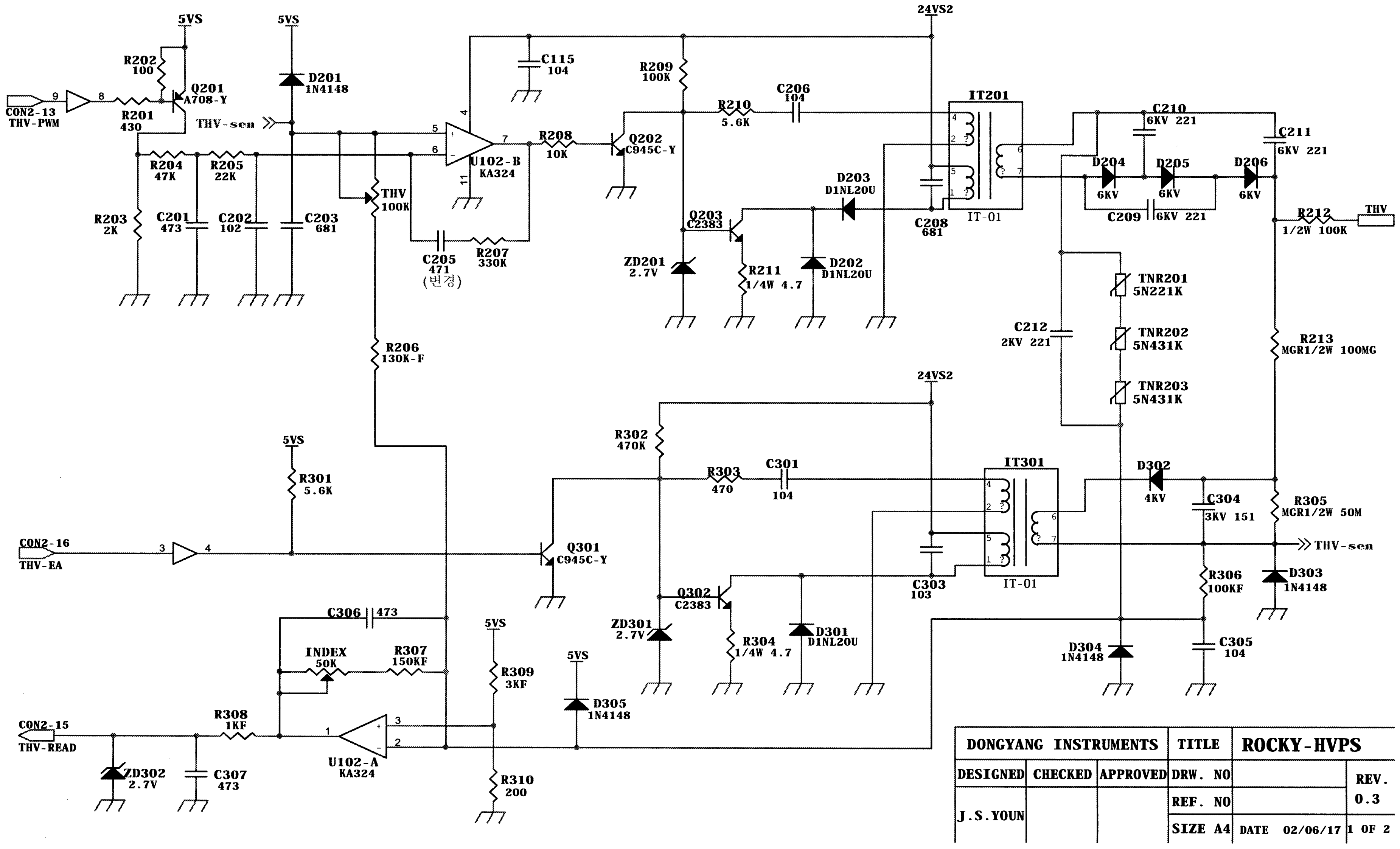
F1
250V5A
TNR1
10D561
R1
1W560KJ
C1
474
LF1
TR0610V
AR1
DSS-601M
F2
250V2A
TH1
10D-13
LF2
UL50055
C4
224
BD1
D3SBA60
C5
450V
120uF
R14
1/4W330K*2
R15
R2
R3
R4
1/4W100K*3
C6
1K223
R5
5W20K
D5
UF4007
C9
1K101
C2
C3
472MAA*2
C101
1K222
D101
200V10A
C102
35V
1000uF
1/2W3.3K*9
R102
R103
R104
R105
R106
R107
R113
R129
R130
SW2
SS-5GLD
C105
50V1uF
CON2-13,16
+24V 1A
CON2-11,12
+24VS1.5A
CON2-9,10,16
GND
D104
200V1A
U105
79L05
IN
GND
OUT
C103
35V47uF
C104
25V10uF
CON2-8
-5V 0.05A
GND
CON2-7
40V3A*2
D102
D103
C106
1K102
C107
16V1500uF
R109
NC
R110
1K
PC101-A
PC123
L101
5uH
C108
50V1uF
U101
TL431
R111
2.7KF
R112
2.6KF
C109
10V470uF
F101
250V2A
CON2-3,4
+5V 1.5A
GND
CON2-5,6
PT1
U2
STR-G6353
Drain
Vin
Source
GND
OCP/FB
B1
D6
200V1A
R6
1/8W51
VR1
200
PC101-B
PC123
C7
35V
22uF
R10
30K
R8
300F
R7
6.8K
R9
1W0.33
C8
681
C13
472MAA*2
C12
L1
100uH
CON1
CON1
R11
1W47
C10
630V
333
U1
BTA12-600B
R13
1/4W22
C11
50V
104
R12
1W180
PC102
TLP3061F
R114
1/2W1.5K
CON2-11,12
+24VS
CON2-26
FUSER-ON
Q102
C1008-Y
+24VS
CON3
CON3-3
CON3-2
CON3-1
D105
1N4003
CON2-23
FAN
R119
2.2K
Q101
KSC1008-Y
R120
5.6K
TNR101
7D561
OPC1
D GND
CON4
CON4-3
CON4-2
CON4-1
CON4-4
CON2-1 FEED-SEN
CON2-2 PAPER-EMPT
CON2-15 THV-PWM
CON2-16 MANUAL
CON2-17 THV-READ
CON2-18 THV-EA
CON2-19 BIAS-PWM
CON2-20 MHV-PWM
CON2-21 LED TONER SAVE
CON2-22 LED-ERROR
CON2-23 FAN
CON2-24 KEY-DEMO
CON2-25 EXIT
CON2-26 FUESR-ON
5V
R125
1/4W150
R126
47K
R127
1/4W150
R128
47K
PAPER EMPTY
CON2-2
CON2-1
FEED SENSOR
OP104
2G-288
OP103
KPI-512
5V
R115
1/4W150
R116
47K
R117
1/4W150
R118
47K
MANUAL
CON2-14
CON2-25
EXIT
OP102
KPI-512
OP101
KPI-512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9
8
R201
430
R202
100
5VS
Q201
A708-Y
THV-sen
5VS
D201
1N4148
R204
47K
R205
22K
R203
2K
C201
473
C202
102
C203
681
5
6
4
7
11
U102-B
KA324
THV
100K
C205
471
(변경)
R207
330K
R208
10K
Q202
C945C-Y
C115
104
R209
100K
R210
5.6K
C206
104
24VS2
Q203
C2383
ZD201
2.7V
R211
1/4W 4.7
D203
D1NL20U
D202
D1NL20U
C208
681
IT201
IT-01
4
2
5
1
6
7
C210
6KV 221
C211
6KV 221
D204
6KV
D205
6KV
D206
6KV
C209
6KV 221
R212
1/2W 100K
THV
C212
2KV 221
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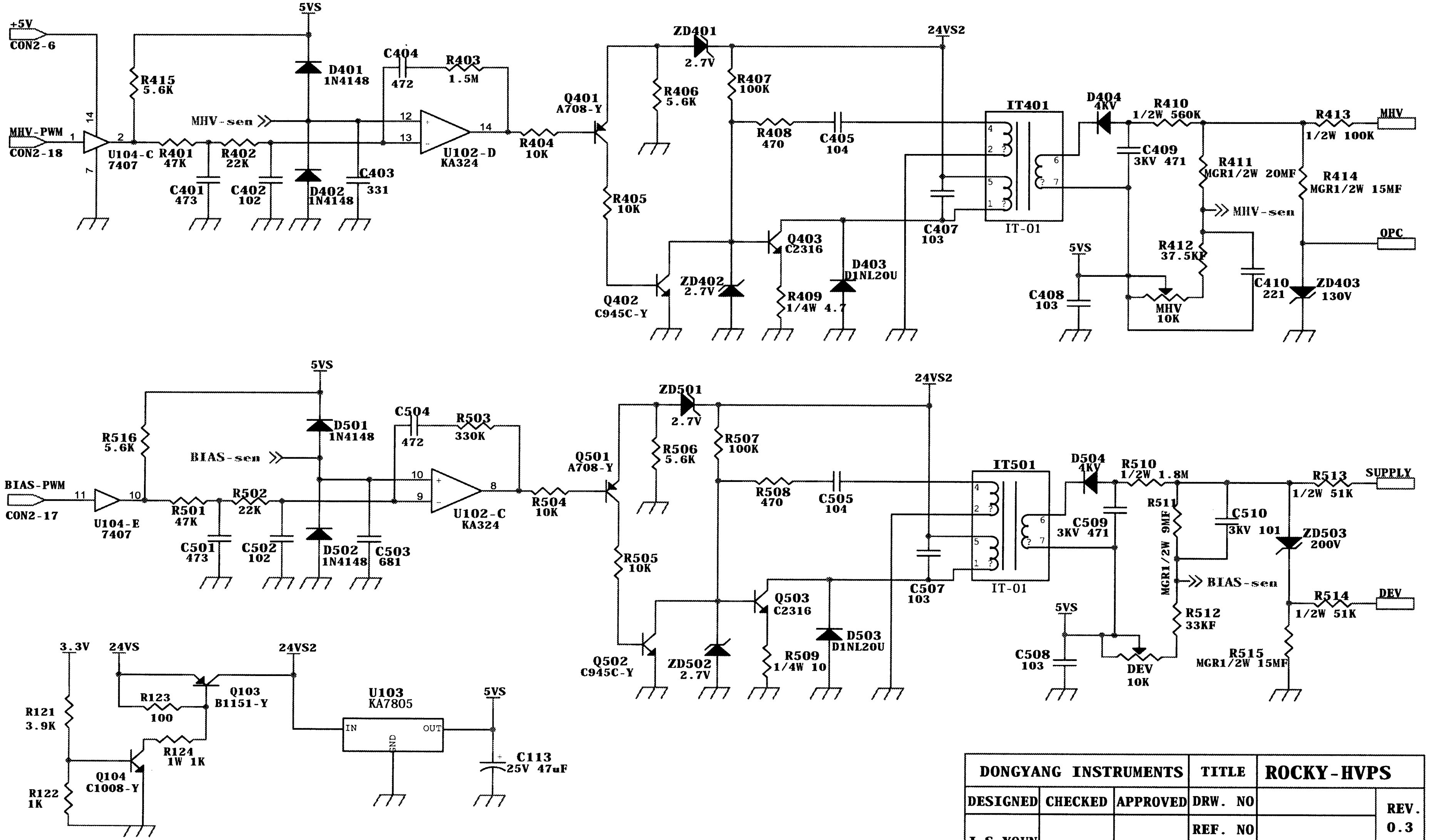
TNR202
5N431K
TNR203
5N431K
R213
MGR1/2W 100MG
R206
130K-F
5VS
R301
5.6K
CON2-16
THV-EA
3
4
Q301
C945C-Y
24VS2
R302
470K
R303
470
C301
104
IT301
IT-01
Q302
C2383
ZD301
2.7V
R304
1/4W 4.7
D301
D1NL20U
C303
103
D302
4KV
C304
3KV 151
R305
MGR1/2W 50M
THV-sen
R306
100KF
D303
1N4148
D304
1N4148
C305
104
C306
473
INDEX
50K
R307
150KF
5VS
R309
3KF
R310
200
5VS
D305
1N4148
CON2-15
THV-READ
ZD302
2.7V
C307
473
R308
1KF
1
3
2
U102-A
KA324

DONGYANG INSTRUMENTS			TITLE	ROCKY-HVPS	
DESIGNED	CHECKED	APPROVED	DRW. NO		REV.
J.S.YOUN			REF. NO		0.3
			SIZE A4	DATE 02/06/17	1 OF 2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MHV-PWM
CON2-18
U104-C
7407
R415
5.6K
R401
47K
R402
22K
C401
473
C402
102
5VS
D401
1N4148
D402
1N4148
C403
331
MHV-sen
C404
472
R403
1.5M
U102-D
KA324
R404
10K
Q401
A708-Y
ZD401
2.7V
R406
5.6K
R405
10K
Q402
C945C-Y
R407
100K
R408
470
C405
104
ZD402
2.7V
Q403
C2316
R409
1/4W 4.7
D403
D1NL20U
24VS2
C407
103
IT401
IT-01
D404
4KV
C409
3KV 471
R410
1/2W 560K
R411
MGR1/2W 20MF
MHV-sen
R412
37.5KF
MHV
10K
5VS
C408
103
C410
221
R413
1/2W 100K
MHV
R414
MGR1/2W 15MF
OPC
ZD403
130V
BIAS-PWM
CON2-17
U104-E
7407
R516
5.6K
R501
47K
R502
22K
C501
473
C502
102
5VS
D501
1N4148
BIAS-sen
D502
1N4148
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681
C504
472
R503
330K
U102-C
KA324
R504
10K
Q501
A708-Y
ZD501
2.7V
R506
5.6K
R505
10K
Q502
C945C-Y
R507
100K
R508
470
C505
104
ZD502
2.7V
Q503
C2316
R509
1/4W 10
D503
D1NL20U
24VS2
C507
103
IT501
IT-01
D504
4KV
C509
3KV 471
R510
1/2W 1.8M
R511
MGR1/2W 9MF
C510
3KV 101
BIAS-sen
R512
33KF
5VS
C508
103
DEV
10K
ZD503
200V
R513
1/2W 51K
SUPPLY
R514
1/2W 51K
DEV
R515
MGR1/2W 15MF
3.3V
24VS
R121
3.9K
R122
1K
R123
100
Q103
B1151-Y
R124
1W 1K
Q104
C1008-Y
24VS2
U103
KA7805
IN
GND
OUT
5VS
C113
25V 47uF

DONGYANG INSTRUMENTS			TITLE	ROCKY-HVPS	
DESIGNED	CHECKED	APPROVED	DRW. NO		REV. 0.3
J.S.YOUN			REF. NO		
			SIZE A4	DATE 02/06/17	2 OF 2